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Business, Economics and Science

Common Challenges

Editors
Joanna Duda and
Tomasz Bernat

(Place of publication Bologna)

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PREFACE

With this book, we offer readers a collection of articles that cover a wide range of topics related to the analysis of modern trends in the economies and business management.

The first part of the book is devoted to the recent advanves in management. The authors discuss, among other things, digital transformation of enterprises and the use of computer processing technologies, effective management of corporate personnel, assessment of the level of social capital value, relationship management, entrepreneurship, research and development, innovation, a cooperation of companies with universities, education and finance.

The second part covers economic issues. In particular, financial foundations of economies are discussed, macroeconomic cycles in terms of the national and local economy are analysed, an enterprise focused analysis of selected issues is provided, and the role of human capital and women within it, as well as the importance of the labour market, are pointed out. This part ends with a discussion on topics such as socialization economics and institutional theory.

Summarizing, this book is an indispensable compendium of knowledge on current economic topics and can be successfully recommended to scientists and students of economy and management. It brings as well value to entrepreneurs and employees of state administration who are dealing with daily organization's performance.

Joanna Duda
Tomasz Bernat

PART I

Selected Issues of Enterprise Management

CT-Trends in Digital Transformation – Case of Polish SMEs

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Keywords: Digital transformation, intelligent organization, ICT, knowledge management, SMAC

1. Introduction

Digital transformation – the use of technology to radically improve performance or reach of enterprises – is a hot topic for organizations across the globe. The dynamics of market changes and the high level of turbulence in business environment make modern economic organizations face the challenge of continuous improvement in their operational methods and development. In practice, it implies the necessity to use modern ICT solutions in knowledge management, which enable to support business processes within the acquisition and reinforcement of business's competitive advantages. Within the evolution of the information society towards the knowledge society, it boils down to the treatment of modern organizations as intelligent organizations. An intelligent organization is one whose business philosophy is based on knowledge management [7]. This term became popular in the 1990s owing to the growing ICT development, the dynamically changing economic environment, and the increasing market competitiveness. An intelligent organization is one that learns and has the capacity to create, acquire, organise, and share knowledge and use it in order to raise the efficiency of its operation and increase competitiveness on the global market. The idea of such an organization is based on the systemic approach to organization, i.e., its treatment as a complex organism founded on existing structures and executed processes, focusing on the role of knowledge. In that approach, which is called 'the fifth discipline' by P. Senge, owing to knowledge and suitable tools all elements of an organization and its personnel can collaborate in order to achieve set objectives [12]. Thanks to that, the whole organization operates as an intelligent and successful organism in the competitive environment. This explains the mutual relationships between methods of fulfilling targets, their understanding, methods of solving problems as well as internal and external communication.

This chapter is aimed at presenting the latest condition of digitalization and development tendencies in supporting the intelligent organizations with SMAC solutions (*Social*, *Mobility*, *Analytics*, and *Cloud*), which is a *sine qua non* condition of enterprises from this sector to operate in a modern way and to take part in the process of digital transformation. ICT implementation in every organization depends on numerous factors, mostly organizational, human, and technical, but also on the needs of the management, which can be more or less conscious. Unlike large organizations, where the implementation of advanced SMAC is perceived positively, it seems that an opposite approach to this trend can occur in the SME sector. Hence, the objective of the research has been defined to test the readiness of Polish SMEs to implement and use systems within the so-called 3rd ICT platform. In order to fulfil the objective, the following research hypotheses have been formulated:

- elements of SMAC solutions are used on an increasing scale in SMEs,
- SME management pay growing attention to the implementation of SMAC systems.

The analyses are illustrated with survey results and direct observations of the author from 2014-2018 in selected 120 SMEs from Mazowieckie and Wielkopolskie provinces, Poland,

with reference to the general development trends in the studied area. The survey sample was made up of micro (9%), small (56%) and medium sized enterprises (35%). Surveyed companies represent a wide range of industries: retail and wholesale trade, discrete and process manufacturing, transport, HoReCa, utilities, finance, construction, telecommunication and ICT.

2. Intelligent Organizations in Digital Transformation

The most important characteristics of an intelligent organization include, among other [12]:

- fast and flexible operation,
- the ability to monitor the environment,
- the capacity to diagnose early market signals and to react to changes in the environment, and
- the ability to implement new knowledge-based solutions and achieve economic benefits therefrom.

The growing volume of information used in an intelligent organization is accompanied by its increasing importance. Peter Drucker indicated already that traditional factors of production, such as growth, labour, and capital, are losing their importance in favour of a key resource, namely knowledge applied in the creative operation of an organization. It constitutes intangible resources that are related to human actions, whose use may be the basis for gaining a competitive advantage [7]. Knowledge has to be treated as information embedded in the context of an organization and a skill to use it effectively in the organizational activity. It means that knowledge resources are data about its customers, products, processes, environment, etc. in a formalized form (documents, databases) and in non-codified forms (knowledge of staff).

In the practical dimension, the effective collaboration of such elements means the necessity to use advanced ICT solutions. Technical, technological, and organizational innovations, which have appeared in recent years, are all utilized [1]. They encompass almost all areas of a modern organization operation, starting from means of transport and equipment, through organization and material and raw material flow management, to the development of system structures that implement business processes, i.e. within logistics systems that are the essence of modern management based on ICT solutions.

The present effect of the ICT evolution in the form of the so-called third ICT platform, has been treated since 2013 as the foundation of the 4th industrial revolution, being the natural development stage of the 3rd revolution of 1969 (its symbol being electronics with its transistor and automated production). The main distinguishing element of new changes has become the redefinition of the present course of business processes that contributes to new operating models of economic organizations facing new challenges to maintain their position and expand on the market further. The industrial revolution of the 4th stage is breaking out due to [2], [3], [10]:

- the introduction of the all-present digitalization,
- decision processes based on virtual simulations and data processing in real time, and
- machine-machine and machine-man communication.

The digital transformation means a change of the present approach to a customer and a comprehensive process where an organization moves to new methods of operation using the state-of-the-art SMAC digital technology, including social media, mobility, Big Data – analytics, and cloud computing. However, it has to be kept in mind that the role of digital technologies in that process is to enable the necessary changes and open an organization to new opportunities. Therefore, they should be a tool rather than the aim of transformation. The centre of the process has to be the customer and his needs, as the main driver for

manufacturers and service providers. The digital transformation is no longer the method of gaining a competitive advantage – it is becoming a factor that enables to stay on the market [9].

3. Trends in Digital Transformation

Digital transformation is being spearheaded through a combination of software and hardware advancements. While the list of advancements is endless, the most promising technologies fall under one of the four umbrella terms described briefly below [3], [4], [14].

I. The Data Science Trio refers to three advancements related to data science that are arguably causing the greatest disruptions across various industries at present. These three technologies are:

- Data Analytics and Big Data Analytics refer to a set of qualitative and quantitative methodologies used to study and extract knowledge from raw data and use it to guide business decisions. Big Data refers to gargantuan data sets that contain important information and patterns hidden among large heaps of supplemental data. Both finite data analytics and big data analytics are applicable in virtually any scenario involving a database and sufficiently large amounts of data. Scores of companies are currently hiring armies of Data Analysts to crunch through their datasets and help them improve/organize their practices and services.
- Machine Learning refers to the concept of giving computers the ability to learn on their own without human intervention. The primary usage of machine learning is to teach computers to recognize patterns on their own in cases where human analysis is too slow, expensive, or even impossible. Machine learning has thus seen itself being employed in recommendation engines, market analyses, spam filters, network security solutions, and more. Any organization that has data-based assignments which are large & repetitive (or) involve some form of identification tasks (or) a combination of both the above, should consider exploring machine learning solutions.
- Artificial Intelligence (AI) refers to a computer possessing the ability to perform a task or tasks in a manner that is just as effective or even more effective than a human being doing the same. While machine learning deals with a computer studying data and merely outputting what it has learned, Artificial Intelligence deals with a computer studying data and taking decisions/executing tasks based on certain pre-programmed instructions. AI is best implemented in any scenario requiring high speed and high precision decision making and task execution.

II. Internet of Things (IoT) refers to a network of interconnected physical devices and sensors that collect data and exchange it with one another using the internet as a communication platform. IoT networks allow for low cost embedded systems to be deployed into physical environments where they can continuously collect information, relay it, interpret it, and act on it accordingly. IoT helps in achieving a scenario where all variables of a physical environment can be mapped and each constituent device's functioning can be made to depend on said variables or outputs from other device(s). For this reason, IoT has found immense value in health-care, smart cities, and smart homes.

III. Remote Work Environments. High skilled employees are very often not available at the desired location of a firm or may sometimes prefer to work at home. In the digital age, it makes no sense to compromise on talent by restricting hiring & work to a single physical location. Whether it is an employee situated halfway across the world in a satellite office or an employee situated half way across town in their home, technological advancements such as video calls and internet-connected project management software allow us to send work to employees themselves when the reverse is not possible.

IV. Block Chain Technology. The finance industry is currently undergoing one of its largest transformations in history – thanks to blockchain. Blockchain refers to a distributed global database spanning across millions of computers all over the globe. It is not controlled by any central authority and uses state of the art cryptography to prevent unauthorized access to sensitive information such as transaction history. Blockchains have already been implemented to create cryptocurrencies (e.g., Bitcoin) which are unregulated digital currencies that offer alternatives to traditional currencies. Cryptocurrencies are used widely due to the unmatched security and freedom they offer in trading any amount of money, big or small, without having to face any bureaucratic trouble.

V. Other Promising Trends. Beyond the technologies discussed above, there are several other technologies promising digital disruption of legacy industries. Some of the most promising trends are:

- Virtual Reality and Augmented Reality VR work by simulating entirely new environments digitally while AR works by imposing simulated elements onto real environments. Both VR and AR find already finding application in the fields of gaming, health-care, and warfare.
- Internet-Based Media & Advertising. Although – Internet-Based Media & Advertising is already mainstream, most companies still prefer to spend more on print and TV platforms. As the world continues its tectonic shift to Internet-based consumption, firms such as Netflix and InMobi are already capitalizing lucratively on internet revenues for media and advertising content respectively.

4. Results

Research carried out by the author shows that the popularity of ICT support in management processes in SMEs can be presented as follows (percentage of analysed enterprises):

- finance and accounting – 93%,
- human resources – 81%,
- warehouse management – 72%,
- production management – 28%,
- customer relationship management – 62%,
- office work support – 98% (including email 98%), and
- procurement and sale process service – 68%.

The analysed enterprises use laptops and PCs in their day-to-day operations (99% of indications). On average, they hold about 18 computers. The vast majority use both land lines and smartphones. Tablets are used in every third enterprise (38%), with 6 tablets per firm on average. The above-mentioned statistics are supplemented with the 58% ratio of using online messenger systems and taking advantage of the support provided by ICT freelancers at 63%.

SMEs usually do not use multi-layer data processing protections. Instead, they choose only basic anti-virus software (93%). Every second enterprise (54%) protects its data with a standardized policy of passwords that are set and managed by the management. On the other hand, less than half SMEs (49%) encode their e-mails. Only one out of three firms use data backup (36%), including as many as 89% having that process automated. Interestingly, backup is used to secure company data more often by entities that do not consider their ICT security to be of essential importance for their business.

The readiness of the studied entities to face the challenges of digital transformation is as follows:

- 22% of respondents answered positively, confirming the implementation of such tasks,
- 12% of respondents answered that such actions would be taken soon,

- 20% of responses indicated that such actions would be taken in the near future, and
- according to 46% of respondents such actions were not being conducted and there were no such plans.

As regards the use of SMAC solutions, the statistics of the analysed entities reflect the general global trend in this respect, i.e., [3], [5], [6], [8]:

- a cloud is used in 18% organizations (38% of analysed population plans to start using it),
- mobility is utilized in 29% of organizations (with 15% of analysed population planning to launch it),
- analytics is applied by 9% of organizations (while 16% of studied population have plans to start it), and
- social media are declared by as many as 45% of organizations already, and their use in the near future is declared by 55% of respondents.

The development trends of Polish intelligent organizations in the digital transformation is supplemented with the following declared initiatives [11], [13], [15]:

- office digitalization – 75%,
- modernization of ICT infrastructure – 74%,
- consolidation in ICT and advanced analytics – 55%,
- new mobile applications for personnel – 52%,
- networking – 53%, and
- mobile self-service applications for customers – 38%.

The fact of placing a customer in the centre was confirmed by responses about catching up with the dynamically evolving needs of contemporary consumers. Moreover, half of the respondents indicated the necessity to follow the changing expectations of their customers, declaring it to be their top business priority. The continuous improvement of customer satisfaction level is possible mostly owing to investments in new ICT solutions. Only owing to them shopping can be comfortable, fast, and possible at any time and place, while customer service can be effective. It also means the new opportunities in acquiring knowledge about needs, behaviour, and opinions of customers. In general, the above-mentioned study results show that Polish modern business organizations are becoming more confident in using advanced solutions of SMAC systems, to meet the challenges of digital transformation [2], [9].

5. Conclusions

The dynamic economic changes and the evolution of business relationships devaluate traditional sources of competitive advantages in the SME sector, such as capital, infrastructure, access to outlets, and the quality of offered products and services. Modern enterprises that want to compete on the market effectively have to give priority to flexibility of their organization and its ability to implement innovative business models and reorganize logistics processes. Examples of numerous Polish SMEs show that the vision of a business managed in a modern way has come into the dynamic phase of realization, while the effective knowledge management with advanced ICT solutions is growing to the role of paradigm.

There is no doubt that reserves still present in the SME sector can be utilized, through supporting its operation with advanced ICT systems with the dominant role of SMAC solutions.

Nevertheless, it has to be remembered that the creation and development of such smart technologies has one basic aim for businesses, namely to accelerate the development pace and improve the quality of offered products and services, while reducing operating costs.

Although it seems apparently simple, paradoxically innovation of Polish business organizations from the SME sector is burdened with the concern about the unknown. SMEs are afraid of investing in solutions that are not popular yet. Nevertheless, the strategic vision of the management in such organizations will determine the directions and pace of popularizing modern and effective solutions in knowledge management, which may contribute to the improvement of their competitiveness on the global market.

SMAC solutions opens up a new frontier for digital business. This is because virtually every application, service and IoT object incorporates an intelligent aspect to automate or augment application processes or human activities. Digital representations of things and organizational processes are increasingly used to monitor, analyse and control real-world environments. These digital twins combined with SMAC and immersive experiences set the stage for open, connected and coordinated smart spaces. Formal mechanisms to identify technology trends and prioritize those with the biggest potential impact on the business create competitive advantage.

REFERENCES

[1] Adamczewski, P. (2017). E-logistics as the ICT Support in Modern Polish Organizations. Chinese Business Review, August, 2017, Vol. 16, No. 8, pp. 391-410, New York.

[2] Adamczewski, P. (2016). ICT Solutions in Intelligent Organizations as Challenges in a Knowledge Economy. Management, Vol. 20, No. 2, pp. 197-208.

[3] Betz C.T. (2018). Managing Digital. Concepts and Practices. The Open Group Press, San Francisco.

[4] Cisco Global Cloud Index 2013-2018 (2016). Cisco Systems Inc., San Jose.

[5] [Corcoran, P., Datta S. K. (2016). 'Mobile-edge Computing and the Internet of Things for Consumers: Extending Cloud Computing and Services to the Edge of the Network'. IEEE Consumer Electronic Magazine, Vol. 5, No. 4, pp. 73-74.

[6] Gartner (2018). Top 10 Strategic Technology Trends for 2019. New York.

[7] Grösser, S.N., Zeier R. (2012). Systematic Management for Intelligent Organizations. Springer-Verlag, Berlin Heidelberg.

[8] Lechman E. (2018). The Diffusion of ICT. Routledge – Taylor & Francis Group, London – New York.

[9] McConnell, J. (2017). The Organization in the Digital Age. New York.

[10] Report IDC FutureScape "Worldwide IT Industry 2016 Predictions: Leading Digital Transformation to Scale" (2016). New York.

[11] Riche N.H., Hurter Ch. (2018). Data-Driven Storytelling. Taylor & Francis Group, Raton.

[12] Schwaninger, M. (2010). Intelligent Organizations. Powerful Models for Systematic Management. Springer-Verlag, Berlin Heidelberg.

[13] www.linkedin.com/pulse/digital-transformation-pyramid-business-driven-approach-turchi, [29 Nov 2018].

[14] www.solutions.pyramidci.com/digital-transformation-definition-trends-every-thing, [29 Nov 2018].

[15] Ziemba E. (2017), The Contribution of ICT Adoption to the Sustainable Information Society, "Journal of Computer Information Systems", Vol. 59, No 2, pp. 116-126.

The Impact of Digitalisation on Work and Co-Determination in Germany

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Keywords: Digitalisation, Co-Determination, Social Dialog

1. Introduction

In industrial and labour policy debates, digitalisation and the so-called Internet of Things have been a dominant topic for several years. The buzzword of the German debate is "Industrie 4.0". The term was introduced at the Hanover Fair 2011 and, unlike any other, has sparked a discussion about the technical future of the industrial production, which has been reflected in countless publications, conferences and also operational pilot projects in companies. The future expectation that "Industrie 4.0" stands for is based on a radical, partly disruptive change in productive models, which is induced by digital technologies and whose quality corresponds to what is known as a fourth industrial revolution. This revolution, so the idea, leads to largely digitized and virtualized production systems not only in the industry, but also in the service sector [1].

These radical and "high-flying economic expectations" [2] have recently produced cautious and sceptical assessments of the consequences of digitalisation.

Noteworthy here is a broad debate on labor policy, which includes slogans such as *Arbeit 4.0* (Labour 4.0), *Mitbestimmung 4.0* (Co-determination 4.0) and others. Particularly the topic of labour has gained in importance through a Green and a White Paper of the Federal Government; the latter paper understands Labour 4.0 as a "necessary complement to the discussion on [...] Industry 4.0" [3].

The German discussion about the future of work in a more and more digital world is characterized by several topics with different weightings:

One focus is the implication of digital rationalization and modernization on employment.

Here, digital technologies were and are seen as a threat, often with reference to the study by Frey and Osborne (2013 [4], see also [5] and for Germany [6]). The forecasts of job cuts have not yet been realized in the German labour market, and the current performance and robustness of the German labour market indicate that the opposite is the case [7] [8] (see Rinne/Zimmermann 2016: 5; Dengler/Matthes 2015).

A second subject area includes, roughly speaking, the prospective quality of work in digital production systems and the requirements of digitization for work conditions as well as qualification and competence development.

A third labour policy issue revitalized by digitalization is the flexibilization and demarcation of labour, and, closely linked to it, an acceleration of the trend towards marketization and decentralization of human resource and corporate management by methods such as crowdsourcing or crowd working [9] (Hirsch-Kreinsen *et al*., 2018: 179f.).

In all these threads of the German debate it is common to "emphasize the openness of the future" [10] (Haipeter *et al*., 2018). The openness is evident in the fact that an important means of the debate is the development of change scenarios of the German employment

system. A starting point are dichotomic patterns like the differentiation between the "automation scenario" that has got a negative connotation from a labour policy perspective, and the (positive) "tool scenario" [11] (Windelbrand 2014). Ittermann and others developed a differentiated scheme [12] (see also [13] and [14]). The background of their scenarios is to summarize in a pointed way the state of research and arguments on the various future concepts ("Industry 4.0 (...) revisited"). The authors develop a positive scenario based on an understanding of Industry 4.0 as "promising technology" [15]. It strengthens a trend towards the revaluation of industrial work and sees employees as the future "conductors of value creation". Opposed to this optimistic view, they present a dystopian scenario that points out arguments that speak for the loss of workers' rights, for a general devaluation, and a quantitative loss of importance of industrial work. A third scenario combines the first two approaches into a polarization trend in which the middle tier of qualification is one of the losers of digitization, and winners include the high-skilled employment segment as well as the segment of trivial and easy work. A fourth scenario focuses on the flexibility of digital technologies. It points out an erosion of internal labour markets (in the sense of i.e., Doeringer/Piore [16]) by an increasing boundarylessness of work and the gaining importance of precarious work. The motor of this development is work forms like cloud and crowd working that become the dominant feature of the employment systems.

Due to the scope of the industrial policy discussion on digitalization, this radiates on the practice of the co-determination of employees, which is based on the BetrVG. This right to co-determination on company level and additionally the collective bargaining autonomy form the "core of the German co-determination model" [17].

Digitalization has a strong operational policy component; central actors of co-determination are the works councils, to which the BetrVG grants various rights of participation, consultation and information. In the context of digitalization, two rights of the works council are in the centre: on the one hand co-determination in the introduction and application of technologies for performance and behavioural control of employees (§87 (1) BetrVG), on the other hand, the information and consultation rights of the works council on change the company organization, the introduction of new working methods and manufacturing processes and other ("Change of operations", §111 BetrVG). The central means of operational regulation of industrial relations are company agreements concluded between employer and works council (§77 BetrVG) (*ibid*.: 228).

From the combination of employee participation and digitalization, various issues are currently being discussed. Central to this are the requirements for employee participation and the role of works councils in the operational design and regulation of digital work processes and business models [18]. On qualitative basis, Georg *et al*., have examined different companies and different approaches of works councils to the digital transformation [19]. They summarized their results in a typology, within which differentiate works councils based on the level of knowledge acquisition and range of involvement. They form four real types of behavioural patterns of works councils in the digitalization process: (1) the pragmatic works council, (2) the reactive works council, (3) co-digitizers, and (4) the satisfied works council.

In addition to the question of the role of works councils in corporate digitalization strategies, the possibilities of digital technologies for participation are also discussed in this context, i.e., the use of new forms of communication by works councils to bridge spatial and temporal distances, to shorten decision-making paths or to involve employees opinions in the work of the works council. Co-determination 4.0 as a "new model of co-determination" [20] is an attempt to combine both issues. The challenges of designing and regulating new labour-policy requirements are difficult to imagine if "they do not use digital technologies themselves" (*ibid*.: 318).

Another aspect of the topic of Industry or Work 4.0 is the labour-policy claim of the trade unions (*ibid.*), in particular the IG Metall, the metal workers union. This is expressed in two projects, the project "Work and Innovation" of the IG Metall and the project "Work 2020", carried out by the IG Metall, trade unions of other industries and the DGB, the German trade union umbrella association. Both projects offer works councils extensive support structures through advice, qualification and support with working methods. On the one hand, they show that there are major organizational obstacles on both the employers' and the works councils' side. These obstacles can be overcome, however, and can lead to form a collective agreement between the works council and the employer on digitalization and the company's future.

In addition to the problems of digitalization on company level, it is also called and problematized as a general political task, in particular according to shifts in the balance of power. These are to the detriment of the workers and contribute to the "digital loss of security" of work, to the processes of de-collectivization and deprivation. Political initiative and legal regulation are required for the containment of these digital risks [21] (Schwemmle/Wedde 2018).

2. Digitalisation Related Restructuring and Social Dialogue in Two Selected Sectors

2.1. Tourism

In Germany, tourism is seen as a heterogeneous and cross-sectoral business area whose economic importance in national public and economic policy perception tends to be underestimated, according to tourism associations. "Nearly three million people work in this country in tourism. Millions more jobs depend on tourism. With these numbers of employees as well as our share of around four percent of the gross value added, the tourism industry is still on a par with sectors such as mechanical engineering or finance", said the President of the Federal Association of the German Tourism Industry [22]. The figures are based on a study commissioned by the Federal Ministry of Economics for the economic performance of the tourism industry, which in its entirety is not covered by the system of official statistics (*ibid.*: 12).

Because of its characteristics as a cross-sectoral business, tourism value creation is divided into two core areas: the production of tourism products (overnight accommodation, travel and other services) and their marketing.

In order to differentiate business models and services in tourism, a distinction is made between different categories of travel and visitors. According to Word Tourism Organization, three criteria of travel are constitutive: duration (overnight vs. day tourists), motives of travel (holiday, business trip, pilgrimage etc.) and the travel destination (for example, domestic/foreign). After these elements can form different travel groups, which have typical differences in travel behaviour. For example, when traveling abroad to Germany, the share of private, multi-day overnight stays dominates with 66.0 percent of all journeys, while the share of business day trips is 2.6 percent. When traveling by residents in Germany, the proportion of private overnight stays is 37.1 percent; business day trips have a significantly higher share of 8.2 percent compared to foreign guests.

Important trends in the tourism industry are digitalization, including the platform economy, as well as increasing individual mobility, the individualization of travel, and demographic change, in particular the increasing proportion of older people affecting travel behaviour.

Another trend is general prosperity growth, especially in emerging countries, which increases demand for travel in general. In the context of digitalization, the tourism industry draws a different picture due to the heterogeneity of the products and services associated with

it. The greatest relevance of digitalization is seen in the area of marketing, where platform economics visibly changes the structure of distribution channels. A tourism manager:

"Digitalization of the tourism industry is a huge issue, especially the sale of services via the internet and the internet in destination marketing" (Int_1_Tourism)

This is a view shared by the relevant tourism associations and professionals: "Digitalization of the economy is also a highly relevant driver of change in the tourism industry: falling transaction costs, the use of big data and disruptive business models through digital platforms are changing the industry at a rapid pace. This is particularly evident in three sub-sectors: business models in the field of tourist services, accommodation and passenger transport are undergoing profound change" (*ibid*.: 41).

The question of the effects of digitalization on the German tourism industry is often described as the simultaneity of opportunities and risks:

"The threat is the platform economy, where large players and platforms dominate with huge market shares, for example AirBnB [...]. Anyway, if you make digitization right, then it leads to an increased number of visitors on site. That means extra work and finally an increase in employment" (Int_1_Tourism)

The view also shares an industry expert from a tourism association: "The attitude [to platform economy] has changed from the negative to the positive. The positive has arrived in the minds, there is now a growing acceptance of the platforms" (Int_2_Tourism).

Apart from the platform economy, the key figures in the industry "do not yet show any major effects [of digitization] on the macroeconomic importance of the tourism industry," according to the tourism association (*ibid*.). The tourism industry is "not [considered] in the sectoral comparison as a pioneer in terms of digitization" [23]. This also applies to the area of labour and employment (*ibid*.: 56). A study on the influence of digitalization on the development of employees in Germany [24] concludes that there is only a small potential for digital substitutability in the sector-relevant occupations. This also explains the digital optimism that has become evident in the tourism-specific expert interviews that explicitly include the field of labour. The representative of an interest group explains:

"According to all the possibilities offered by digitization: In Tourism, the human factor is always essential. People who go to a restaurant want a cook in the kitchen. Hotel guests expect a person at the reception. That is our credo. And in the future, good and skilled workers will be needed for that" (Int_2_Tourism).

Related to this is another argument that another expert brings in. He explains the special role of the human factor in tourism services by saying that "travel and tourism are emotional issues [and], and this subject, this service needs real people. The experience on the spot is important, here at the museum visit, there when checking in at the hotel". For all non-on-site services, most of the communication is digital, and new forms of communication affect work and working conditions.

"People look at their cell phones 100 times until they build a decision as a tourist. We see that most of the requests and communication comes from the online world, which we know from media value analysis" (Int_3_Tourism).

The change in communication and information behaviour also affects traditional websites, which are losing importance in favour of apps and social media, which are well suited for communication and marketing since the fit to the emotionality of tourist products. However, they lead to new demands on communication work, which has become more individual and interactive and i.e., can no longer be reduced to core working hours, according to the interviewee.

"Facebook and Instagram do not stop on Friday at 5pm, but also want to be maintained on the weekend. And that applies to many players, including the hotelier in the Sauerland [a

rural touristic area in Germany], who has to see that he is on the relevant platforms, that he receives good reviews, and so on" (Int_3_Tourism).

What are the requirements for work organization, participation, and co-determination within the tourism industry? According to the standards of decent work, on the one hand a strategic competence development is necessary, on the other hand the operational regulation of working hours and mobile work, in order to counteract eroding spatial and temporal boundaries of work. Due to the system of dual vocational training, Germany seems to be well equipped to meet the growing demand for qualification in tourism professions due to digitalization [25]. However, the corporate design of the digitalization of work by works councils is facing particular hurdles. Works councils in tourism often operate in operational service and have a systematic lack of required expertise (*ibid*.: 76f.), which is needed to regulate work effectively in the context of digitalization.

2.2. Financial Services (Bank/Insurance)

The financial industry in Germany is often characterized as a so-called universal banking system; in contrast to the type of the separation banking system, banks in Germany are licensed as fully-fledged banks and generally offer the full range of services that can be derived from the banking functions. Another central feature of the German financial sector is its three-part division ("three-pillar system"), it consists firstly of private commercial banks (i.e., Deutsche Bank, Commerzbank), secondly public-law banks (i.e., *Sparkassen*, savings banks) and thirdly the cooperative banks (i.e., Volksbanken and Raiffeisenbanken), which are banks characterized by the legal form of a registered cooperative [26].

After a long period of relatively quiet sector development in a regulatory environment, the market has become much more dynamic in the recent past. The reason for this is the change in specific framework conditions, including the current low interest rate situation, growing regulatory requirements and processes of consolidation, internationalization and digitalization.

Among the DIRESOC sector selection, the digitalization of the financial sector, even if it has different facets and effects, has the greatest dynamics. In terms of the market, one effect is an increasing competition through the emergence of new market players, such as FinTechs as new digital competitors and the big internet companies like Apple, Google, Facebook etc.

The further they "extend their product offering beyond payment services to other financial services, the greater the risk to traditional credit institutions" [27].

In addition, digital technologies have far-reaching possibilities of rationalizing internal processes and interfaces with customers and suppliers. With regard to the development of digital business models, even traditional banks are considered as "early adopters". The banking industry is "particularly affected by digitization since, just as in the software or media sector, the core products are almost or even completely based on information. In principle, the collection, transmission and processing of information by means of IT can take place without delay or in real time" [28].

Overall, within bank three digital application areas can be distinguished:

- The internal use of IT systems to streamline internal processes;
- the digitization of customer interaction as well as
- the interaction with service providers.

According to all these areas, experts and interviewees rate the sectoral rationalization potential of digitalization as very high for specific employee groups. Studies conclude that "the fears of a massive job losses in the context of a continuing digitization are currently rather unfounded", does not seem to apply to large occupational groups of the banking and insurance industry. An industry expert from the union:

"What we still have today with simple work processes, for example scanning, etc., will soon disappear. In classical processing, I think there are very high automation potentials. Fifty percent of employees lose their jobs, such scenarios are not exaggerated. Take the insurance industry. In the past, there were discussion and negotiation processes in insurance casework, today, 80 percent are automatic. No one looks at it anymore. The classic insurance salesman is a dying breed" (Int_1_FinSector).

The same applies to other areas with (still) large employment figures, such as accounting.

Limiting certain qualification levels, besides simple activities, also qualified and highly qualified employees are affected by digital rationalization. "The wave of automatization has already begun, but not yet reached its peak," said a works council member from the financial industry.

Another digital transformation is attested to sales and the interface to the customer. Here global companies like Google or Amazon are seen as a threat that could fill this strategic interface based on their potential customer data. "It's an open question as to whether the industry will stay that way or whether Internet companies will take over the business, leaving current companies as suppliers," said a union representative (Int_1_FinSector).

From a labor policy perspective, it can be said that job cuts and employment security are the central problem areas of this sector-specific digitalization. Issues of work design have a lower significance, but nevertheless have a high urgency because of the great change dynamics. The focus is on questions of qualification, the design of mobile work and agile management and working methods.

In terms of employee participation, digitalization leads to excessive demands of works councils. In addition to the requirement of specialist knowledge, this is supported by the "constant crisis mode" in which works councils are always placed. One restructuring project is chasing the next one "(Int_1_FinSector). The rate of change in companies is so high that the co-determination in its existing forms cannot always react effectively, according to the union representative.

This creates permanent conflicts between employers and works councils, and attempts by employers to deviate from employee participation: "The employer says we need more speed.

We need innovation, you [the works councils] are the brakes". At this point, in addition to the business practice, the political position of employers becomes apparent, which increasingly aims at weakening co-determination in the context of digitalization.

3. Conclusions

The brief analyses on the state of digitalization, labour policy and social dialogue in the two selected sectors initially show that there are large sectoral differences in the production models and that there is a heterogeneous picture of the state of affairs, the scenarios and labour-policy problems of digitization.

In order to summarize and to condense the results, it appears to be sensible to juxtapose the respective effects of digital business models in the sectors in order to clarify differences in the labour policy requirements for a human-cantered work design and at the same time to identify organizational needs and problems of co-determination and social dialogue.

From the introduction and industry reports, the following possible effects of digital technologies can be deduced:

- Automation, rationalization of tasks
- Support and assistance through human-machine interaction
- Work control, performance and behaviour control
- Objectification of decisions, digitization of coordinating tasks
- Marketization

- Erosion of boundaries: flexibilization of working contracts, hours, and places

Macroeconomic change and co-determination are not only closely connected since digitalization. Both the tasks of co-determination and its framework conditions were in the past and are still subject to constant change. Central developments are the gaining importance of collective agreements on company level and the loss of importance of collective bargaining agreements and, associated with this, the weakening tendency (even if currently decreasing) among trade unions [29]. Overall, an increase in the importance of employee participation is observed [30], however, the development is judged to be double-edged: on the one hand the requirements and regulatory demands are growing, on the other hand resources are not expanded or certain negotiating options of participation become more important. The demands on works councils lead to a tension between competence gain and over-demand risk; solutions are seen in the professionalization of works councils as well as the (further) development of adequate forms of support [31].

It is the unanimous opinion of interviewees and experts that digitalization is exacerbating the overload of workers councils. They lack not only "digital expert knowledge", but also process and method knowledge, for example on topics such as project management, leadership and negotiation skills.

"Working methods such as Agile Project Management or Scrum cannot solve the [works council] issues, but they can help works councils to reflect and perhaps improve their work processes" (Int_3_Industry)

The structure of the IG Metall project A + I in particular addresses precisely these problems; whether it effectively supports works councils is still an open question that should be further explored in DIRESOC. But it is certain that digitalization holds a great opportunity for trade unions, not only in terms of manufacturing but also in in the service sector: "The central place of trade union action is and remains the company" [32].

REFERENCES

[1] Ittermann, Peter; Niehaus, Jonathan; Hirsch-Kreinsen, Hartmut (2015): Arbeiten in der Industrie 4.0. Trendbestimmungen und arbeitspolitische Handlungsfelder. Hans-Böckler-Stiftung. Düsseldorf (Study der Hans-Böckler-Stiftung, 308).

[2] Pfeiffer, Sabine; Suphan, Anne (2018): Industrie 4.0 und Erfahrung – das unterschätzte Innovations – und Gestaltungspotenzial der Beschäftigten in den Maschinen – und Automobilbau. In: Hartmut Hirsch-Kreinsen, Jonathan Niehaus und Peter Ittermann (Hg.): Digitalisierung industrieller Arbeit. Die Vision Industrie 4.0 und ihre sozialen Herausforderungen. 2. Auflage. Baden-Baden: Nomos; edition sigma.

[3] Bundesministerium für Arbeit und Soziales (BMAS) (2016): Weißbuch Arbeiten 4.0. Arbeit weiterdenken. Berlin: BMAS.

[4] Frey, Carl Benedikt; Osborne, Michael A. (2013): The future of employment. How susceptible are jobs to computerisation? Oxford.

[5] Brynjolfsson, E.; McAfee, A. (2014): The Second Machine Age. Work, Progress and Prosperity in a Time of Brilliant Technologies. New York.

[6] Bonin, Holger; Gregory, Terry; Zierahn, Ulrich (2015): Übertragung der Studie von Frey/Osborne (2013) auf Deutschland. Kurzexpertise im Auftrag des BMAS. Mannheim.

[7] Rinne, Ulf; Zimmermann, Klaus F. (2016): Die digitale Arbeitswelt von heute und morgen, in: Aus Politik und Zeitgeschichte (APuZ), 66 (18/19), pp. 3-9.

[8] Dengler, Katharina; Matthes, Britta (2015): Folgen der Digitalisierung für die Arbeitswelt: Substituierbarkeitspotenziale von Berufen in Deutschland. IAB-Forschungsbericht Nr. 11, Nürnberg.

[9] Hirsch-Kreinsen, Hartmut; Hompel, Michael ten; Ittermann, Peter; Dregger, Johannes; Niehaus, Jonathan; Kirks, Thomas; Mättig, Benedikt (2018): "Social Manufacturing and Logistics" – Arbeit in der digitalisierten Produktion. In: Steffen Wischmann und Ernst Andreas Hartmann

(Ed.): Zukunft der Arbeit – Eine praxisnahe Betrachtung. Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 175-194.
[10] Haipeter, Thomas; Korflür, Inger; Schilling, Gabi (2018): Neue Koordinaten für eine proaktive Betriebspolitik. Erfahrungen aus dem Gewerkschaftsprojekt "Arbeit 2020 in NRW". In: WSI-Mitteilungen 71 (3), pp. 219-226.
[11] Windelbrand, Lars (2014): Zukunft der Facharbeit im Zeitalter „Industrie 4.0". In: Journal of Technical Education 2(2), pp. 138-160.
[12] Ittermann, Peter; Niehaus, Jonathan; Hirsch-Kreinsen, Hartmut (2015): Arbeiten in der Industrie 4.0. Trendbestimmungen und arbeitspolitische Handlungsfelder. Hans-Böckler-Stiftung. Düsseldorf (Study der Hans-Böckler-Stiftung, 308).
[13] Hirsch-Kreinsen, Hartmut (2016): Arbeit und Digitalisierung. Zum Verhältnis von Arbeit und Technik bei Industrie 4.0. In: Aus Politik und Zeitgeschichte (APuZ), 66 (18-19), pp. 10-17.
[14] Ittermann, Peter; Niehaus, Jonathan (2018): Industrie 4.0 und Wandel von Industriearbeit – revisited. Forschungsstand und Trendbestimmungen. In: Hartmut Hirsch-Kreinsen, Jonathan Niehaus und Peter Ittermann (Ed.): Digitalisierung industrieller Arbeit. Die Vision Industrie 4.0 und ihre sozialen Herausforderungen. 2. Auflage. Baden-Baden: Nomos; edition sigma, pp. 33-60.
[15] Hirsch-Kreinsen, Hartmut (2018): Technologieversprechen Industrie 4.0. In: WSI-Mitteilungen 71 (3), p. 166.
[16] Doeringer, Peter B.; Piore, Michael J. (1971): Internal Labour Markets and Manpower Analysis. Lexington, Massachusetts: Heath Lexington Books.
[17] Matuschek, Ingo; Kleemann, Frank (2018): "Was man nicht kennt, kann man nicht regeln" Betriebsvereinbarungen als Instrument der arbeitspolitischen Regulierung von Industrie 4.0 und Digitalisierung. In: WSI-Mitteilungen 71 (3), pp. 227-234.
[18] Haipeter, Thomas; Korflür, Inger; Schilling, Gabi (2018): Neue Koordinaten für eine proaktive Betriebspolitik. Erfahrungen aus dem Gewerkschaftsprojekt "Arbeit 2020 in NRW". In: WSI-Mitteilungen 71 (3), pp. 219-226.
[19] Georg, Arno; Katenkamp, Olaf; Guhlemann, Kerstin (2017): Digitalisierungsprozesse und das Handeln von Betriebsräten. Strategien und Handlungsoptionen von Betriebsräten in der Arbeitswelt 4.0. In: Arbeit 26 (2).
[20] Haipeter, Thomas (2018): Digitalisierung, Mitbestimmung und Beteiligung – auf dem Weg zur Mitbestimmung 4.0? In: Hartmut Hirsch-Kreinsen, Jonathan Niehaus und Peter Ittermann (Ed.): Digitalisierung industrieller Arbeit. Die Vision Industrie 4.0 und ihre sozialen Herausforderungen. 2. Auflage. Baden-Baden: Nomos; edition sigma, pp. 303-321.
[21] Schwemmle, Michael; Wedde, Peter (2012): Digitale Arbeit in Deutschland. Potenziale und Problem-lagen. Bonn.
[22] Bundesverband der Deutschen Tourismuswirtschaft (BTW) (2017): Wirtschaftsfaktor Tourismus in Deutschland. Kennzahlen einer umsatzstarken Querschnittsbranche. Ergebnisbericht. Hg. vom Bundesministerium für Wirtschaft und Energie, Berlin.
[23] Hoppe, Markus (2018): Digitalisierung der Tourismuswirtschaft: Trends und Folgewirkungen. Erfahrungen aus der Hotellerie und von Reiseveranstaltern. Stuttgart.
[24] Dengler, Katharina; Matthes, Britta (2015): Folgen der Digitalisierung für die Arbeitswelt: Substituierbarkeitspotenziale von Berufen in Deutschland. IAB-Forschungsbericht Nr. 11, Nürnberg
[25] Hoppe, Markus (2018): Digitalisierung der Tourismuswirtschaft: Trends und Folgewirkungen. Erfahrungen aus der Hotellerie und von Reiseveranstaltern. Stuttgart.
[26] Jovanović, Tanja; Voigt, Kai-Ingo (2016): Die Auswirkungen der Digitalisierung auf das Geschäftsmodell der Genossenschaftsbanken. In: Zeitschrift für das gesamte Genossenschaftswesen 66 (2).
[27] Jonietz C., Mesch S., Peters A. (2018) Chancen und Herausforderungen der Digitalisierung in Banken und Sparkassen. In: Fend L., Hofmann J. (eds) Digitalisierung in Industrie-, Handels- und Dienstleistungsunternehmen. Springer Gabler, Wiesbaden, pp. 367-382.
[28] Alt, Rainer; Puschmann, Thomas (2016): Digitalisierung der Finanzindustrie. Grundlagen der Fintech-Evolution. Berlin, Heidelberg: Springer.

[29] Müller-Jentsch, Walter; Ittermann, Peter (2000): Industrielle Beziehungen: Daten, Zeitreihen, Trends 1950-1999. Campus: Frankfurt/Main.
[30] Minssen, Heiner; Riese, Christian (2005): Organisation von Betriebsräten. Was macht den Co-Manager zum Co-Manager. Endbericht an die Hans-Böckler-Stiftung. Bochum.
[31] Nettelstroth, Wolfgang; Schilling, Gabi; Vanselow, Achim (2010): Innovationspartnerschaft im Betrieb-Gewerkschaftliches Unterstützungsangebot für Betriebsräte. Innovation und Beteiligung in der betrieblichen Praxis. Gabler, 2010. Pp. 173-188.
[32] Schroth, J.; Janitz, F. (2019): Mehr Betriebspolitik wagen: "Mit Arbeit und Innovation" die digitale Zukunft gestalten. In: Irene Schulz (Ed.): Praxishandbuch: Industrie im Wandel – Bildungsarbeit in Bewegung. Bund Verlag: Frankfurt/ Main.

Attributes of Virtual Economic Activity in Management of Value Enterprises in Poland

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Keywords: Management, enterprises, value, virtualization

1. Introduction

An important element that can support the implementation of the concept is virtualization of processes occurring in an enterprise. By means of virtualization elements, it is possible, using sensors, to monitor physical processes occurring in an organization. Based on obtained data, it is possible to map physical processes and simulate how they work.

A virtual organization is identified with a continuous process of organizing in a highly computerized environment, involving a virtual space, a parallel reality created by computers, their software, network connections and communication technologies [1]. According to E. Niedzielska, the idea of a virtual organization is manifested in the form of multi-faceted and multi-factorial system transformations that take place in various economic entities in order to eliminate inefficient input channels, limit the routes of information stream flows and to convert heavy architectures into flexible organizational units characterized by high autonomy and high standard of operation [2]. A virtual organization is an organization that uses communication technology as a substitute of material structures to enable diffusion and decentralization of work and make an organization more flexible and indefinite" [3].

Virtualization of enterprises shifts value creation processes into virtual space, where it is possible to offer intelligent products online [4]. An intelligent product offered online in a virtual form is so constructed that a customer can choose such a part of it, an option of the offer, that best meets his/her expectations [5].

The value added contained in an intelligent product is usually high, as it is a product with a large potential of knowledge and technology, so large that not every customer can fully appreciate or take advantage of it. For a customer receiving a product with high value added when his/her expectations are significantly lower, the perceived value of such a product will be lower compared to the value perceived by the customer with higher expectations. In a network, the value of a product can be disassembled into its components, and a customer can choose the ones that he/she needs while resigning from the others, which, though valuable for other customers, are worthless to them [6]. The concept of an intelligent product facilitates the process of optimizing relations between the value offered and the value expected by the customer.

2. Materials and Methods

In order to determine the relationship between the degree of an enterprise's virtualization and its size and the industry to which it belongs, five levels of an enterprise's virtualization were identified depending on employed IT tools and purposes of their use in the area of three vectors of virtualize: virtual meetings (contacts with customers), virtual sourcing (configuration of assets) and virtual experience (knowledge development) [7]. The proposal

of enterprise virtualization areas presented in E. Brunelle's [8] analytical model for establishing business, internal and strategic relations, was also considered. The descriptions of the characteristics of the identified virtuality vectors were presented in the Descriptive Model of the Levels of Virtualization of Enterprises proposed by the author [9].

Studies have been conducted using a survey questionnaire carried out among enterprises in Poland. A total of 346 enterprises participated in the study, including 143 micro enterprises, 104 small enterprises, 48 medium-sized enterprises and 51 large enterprises; Including:

- 245 service enterprises and 101 manufacturing enterprises;
- 318 privately owned, 9 state-owned, 11 cooperative, and 4 employee ownership enterprises;
- 61.2% – self-employed economic activity; 22.8% – capital companies, including 28 joint-stock companies and 51 private limited companies.; 4.6% partnerships;
- 60.1% enterprises operating 5 to 15 years; 5.2% – up to 1 year; 33.8% – over 15 years, of which 24 (6.9%) operating over 30 years;

3. Results

In order to assess the importance of virtualization of contacts with customers in value creation in the analysed enterprises, the question about the impact of IT technologies on the quality of relations with enterprises' customers was posed. Larger enterprises much more often declared higher expectations regarding the level of virtualization of contacts with customers (see Table 1).

Table 1. Values of χ^2 and Yule's φ coefficient for the use of information technologies and level of customer service

Problem	**χ^2**	**p**	**φ**
The use of information technologies vs. level of customer service	46.793	0.000	0.392

Source: Own research

Moreover, a clear positive correlation was observed between the achieved level of virtualization of contacts with customers in enterprises and their economic and financial situations (see Table 2).

Table 2. Values of χ^2 and Yule's φ coefficient for information technology employed in enterprises and assessment of the economic and financial situations

Problem	**χ^2**	**p**	**φ**
The information technology employed in an enterprise in the area of customer service vs. an enterprise's economic and financial situation	**28.807***	0.000	0.288

Source: Own research

A higher level of virtualization of contacts with customers comes with a better assessment of an enterprise's economic condition (higher capacity for generating value added).

The study confirmed a significant relationship between an enterprise's size and the degree of technological advancement in configuration of assets (Table 3).

Table 3. Values of χ^2 and Yule's φ coefficient for an enterprise size and the level of employed information technologies

Problem	**χ^2**	**p**	**φ**
The level of employed information technologies vs. the size of an enterprise	58.247	0.000	0.446

Source: Own research

The bigger the enterprise, the higher the level of information technologies used to acquire resources.

In order to assess how virtual sourcing impacts an enterprise's capacity for value generation, correlation was examined between the degree of virtualization of the configuration of assets in enterprises and their assessments of their economic and financial situations (Table 4).

Table 4. Values of χ^2 and Yule's φ coefficient for virtualisation level and enterprises' economic and financial situations

Problem	**χ^2**	**p**	**φ**
Level of virtualisation of the configuration of assets vs. assessment of an enterprise's economic and financial situation	**26.983***	0.001	0.279

Source: Own research

The study confirmed a positive, statistically significant moderate relationship between the level of virtualization of the configuration of assets and the assessment of the economic and financial situation. The higher the level of information technology and tools used in establishing and maintaining contacts with suppliers, the better the assessment of the enterprise's economic and financial situation.

The approach to knowledge and competencies in an enterprise has an impact on the assessment of the enterprise's economic and financial situation (χ^2=23.986; p=0.002; φ=0.263). Thus, in terms of the analysed virtuality vectors, the population of companies surveyed on knowledge development shows a significantly lower level of virtualization than it could have achieved if it had implemented modern information technologies in the area of knowledge management. The enterprises surveyed appreciate the value and importance of virtual experience in a network of cooperation with other enterprises, but this method of knowledge development encounters a technological barrier in particular among micro and small enterprises.

4. Conclusions

In area of vector of contact with customers almost 90% of surveyed enterprises reached 1st and 2nd level of MDPWP virtualization, 3rd degree 4.6%, 4th 3.8%, and the 5th, highest level, has been reached by just 1.7% of them. Higher level of virtualization of customers contact corresponds with higher evaluation of development of value.

In area of assets configuration vector 80% of surveyed enterprises remain on the 1st and 2nd level of virtualization. 5th level of virtual sourcing has been reached in 1/5 of big enterprises participating in the research (almost 8% of total surveyed enterprises). The higher level of virtualization of assets configuration vector is, the higher evaluation of enterprise's abilities to generate value.

In area of knowledge development vector population of surveyed enterprises stays on the considerably lower level of virtualization, than it could be achieved by implementing of modern computer technologies in the field of knowledge management. Virtual knowledge development is dealing with the biggest technological difficulties.

REFERENCES

[1] Kobis P. (2015). Wirtualizacja zasobów informacyjnych organizacji gospodarczych – era chmury obliczeniowej. Przegląd Organizacyjny 2(901), p. 34-42.

[2] Niedzielska E. (1997). Wirtualne organizacje gospodarcze. Prace Naukowe AE, Wrocław, nr 754.

[3] Warner M., Witzel M. (2005). Zarządzanie organizacją wirtualną. Oficyna Ekonomiczna, Kraków, p. 183.

[4] Dziembek D. (2017). Technologie informacyjno-komunikacyjne oferowane w publicznej chmurze obliczeniowej w działalności organizacji wirtualnych. Ekonomiczne Problemy Usług 1(126), pp. 55-64.

[5] Pachura P. (2017). Analiza przestrzeni w kontekście wirtualizacji rynku. Marketing I Rynek 24(7), pp. 595-603.

[6] Tapscott D. (1999) Creating Value in the Network Economy. A Harvard Business Review Book.

[7] Ziółkowska B. (2004). Kształtowanie strategii organizacji wirtualnej [in:] Zarządzanie przedsiębiorstwem w warunkach integracji europejskiej. Część 1. Zmiany w teorii I praktyce zarządzania, ed. A. Podobiński, Uczelniane Wydawnictwo Naukowo-Dydaktyczne AGH, Kraków, p. 393.

[8] Brunelle E. (2009) Do Virtual Enterprises Exist? A Proposed Analysis Model. International Journal of e-Business Management 3(2).

[9] Ziółkowska B. (2013) Zarządzanie procesami tworzenia wartości. Perspektywa wirtualizacji, Wydawnictwo Politechniki Częstochowskiej, Częstochowa.

Marketing Analytics and Scope Big Data in Practice of Enterprises

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When we ponder a problem if marketing develops faster in area of science or of practice, if practice draws from scientific achievement of marketing if marketing draws from achievement of practice of enterprise, we should make a review of application a marketing analytics in enterprises.

Keywords: Scope Big Data, Marketing Analytics, Analysis of Internet Data, Managerial Cockpits (Dashboards), Case Study Method.

1. A marketing Analytics – Notion and Trends, Analysis of Internet Data

At the beginning we should quote definition alone of an analysis of Internet data. The Web Analytics Association proposed standard definition of an analysis of Internet data (http://www.webanalyticsassociation.org): an analysis of Internet data is objective tracking, creation of reports and analysis of quantitative Internet data in order to optimization of websites and Internet marketing campaigns [1]. The same definition was just proposed in 2006, what evidences how young this area is, although it began in 90.

In the light of this consideration we should also consider the statement made by R. Paszkiewicz in the paper "The inconspicuous charm of digital marketing", according to which "practice of digital marketing – it is procurement of knowledge in two areas" [2].

As IT specialist learn marketing, because thanks to it they evolve better systems, as marketing specialist learn making use of optimization of campaign, evaluation of results of campaign on out-puts level, analysis of data and electronic form of connection. So, in modern business IT and marketing are realized hand in glove. In other words, first area is skilful usage of digital media and tool to correctly create communications and target them to customers, examine demand and needs, fulfil whole process of sales, downright to service. In that case whole knowledge in marketing area stems from digital thinking, digital rules of conduct for example in a sales pipeline and in care of leads. The second area is technology, IT. Necessary is knowledge about construction of database, because without it we can't lead marketing analysis. Due to this connection between IT specialists and marketing specialists focus on consumer will be increase.

According to M. Jefferey [3] an analytical marketing we can understand as marketing, which is based on data and application of marketing rates, which, first of all, are used for monitoring of results of all main marketing activities. While M. Grigsby [4] stresses that a marketing analytics shows, how we can optimally use statistics, analysis and modelling for increase of effectiveness of daily marketing activities, starting for creation of target lists and segmentation of data for testing effectiveness of campaign and forecasting of demand.

However, we should state, that more extended scope of analytical marketing began in fact pursuant to more extended dimension of alone marketing. This more extended dimension of marketing consolidata as a consequence of the third industrial revolution, in which digital technologies, new ways of communication triggered e-commerce off. New concepts of marketing of value, relationships with customers, internet marketing and rates, which concern them are confirmation of one of stages of creation of paradigm and even creation of multiparadigm of analytical marketing [5].

2. Scope and Importance of Big Data

Big Data is a term, which describes big, changeable and diverse a set of data, which processing and analysis is very difficult, but it can cause to obtaining of new valuable knowledge. Of course, a term of big set of data is relative and means situation, in which a set of data can't be analysed with the use of normal, simple and the most common ways and methods. Obviously, all depend on trade and level of multidimensional character of algorithm. Big Data describes also sudden increase and accessibility of data, both these systematized and these, which don't have rigorous and permanent structure. From this perspective range of data isn't an aspect, which determines the biggest significance, the most important are precise analysis, which give possibility of using of Big Data for taking firmer and reliable strategic decisions in this business [6].

Why are Bid Data so important in these days? Their value doesn't depend on how much we have data, but it depends on way of using them. Exactly correct and effectiveness using of owned stores of data can allow for competitive advantage on a market. Precise using of owned data can allow an organization, for example: decrease of costs, reduce time, which is spent on some activities, use of new product offers, take better, more well-thought-out and correct decisions in business. Connection of mass data with advanced analytics allow support business operations, find reasons for wrong work, defects in near real time, find reasons for damage, describe of level of risk and convert a risk of whole portfolio in a few minutes, detect behaviours, which can point at abuse before their disruptive influence in organization. So, this combination is possible in dashboards.

Today organizations are able to use knowledge, which is comprised in Big Data and transform it into valuable information, which are essential for business success. So, selection and analysis of needful data is so important in this process, because quantity of data and their components, which are produced in global range is simply overwhelming. Additionally, we can stress that their quantity sill has increased, so "winners" are those, who in the best way will use streams of information and will implement them into their organizations [7].

Development of IT technologies, techniques of deep learning and computational techniques, in connection with development of statistical and econometric models, guarantees impetus for creation of an analytical marketing of new generation. So, the modern diagnostic way of Big Data for an analytical marketing was showed very interesting (Fig. 1) [8].

Figure 1 shows, how large sets of diverse data are used in a marketing analysis, which is constantly expanding in scope and bringing benefits, especially to support long-term goals of a company. Examples of recent studies (illustrated in Fig. 1) also show, how to use new sources of digital data to develop business-specific approaches to a marketing analytics, that provide new, more accurate, more in-depth information.

Remark: the arrow in Fig. 1 shows the increasing importance of diagnostics depending on use of (mostly structured) internal data and (mostly unstructured) external data.

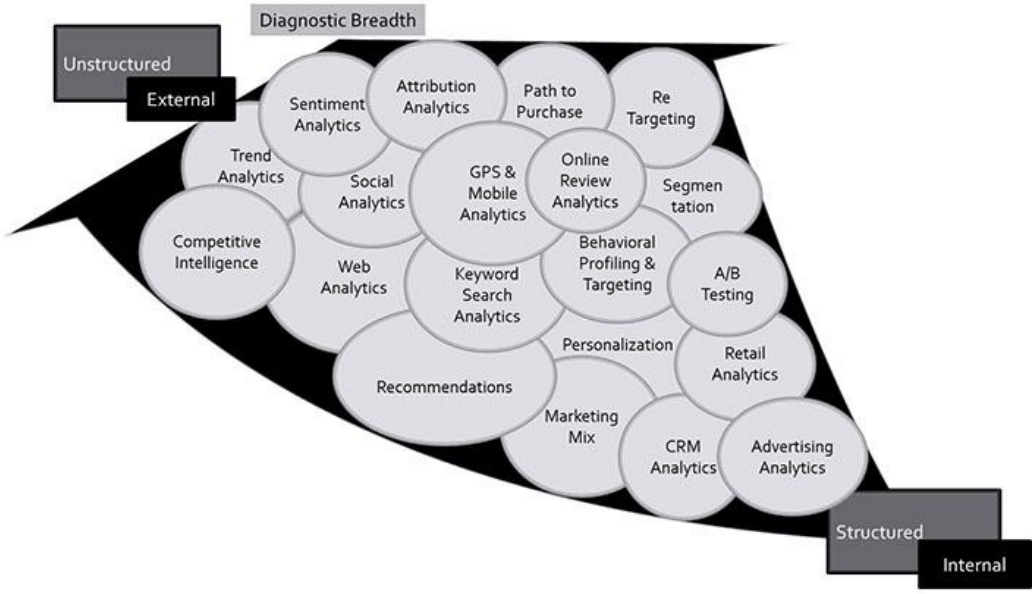

Fig. 1. Diagnostic way of using of Big Data for analytical marketing
Source: M. Wedel, P.K. Kannan, Marketing Analytics for Data Rich Environments, "Journal of Marketing" 2016, Special Issue, vol. 80, s. 109.

Organizations, by combining Big Data with an integrated marketing management strategy, can have quite a significant impact on certain elements. This combination can have a key impact on customer engagement; we can obtain information about the customer himself, who he is, what preferences he has, but we can also obtain information about his location and preferred ways of communication. Such information significantly improves processes at the organization-customer level, which may result in a more efficient way of generating leads and lead more potential customers to the final stage of the sales funnel, namely the purchase of a good. This combination can also have a significant impact on customer's loyalty and retention by the company, and extensive data can help to determine at what stage customers are discouraged and abandon the company's offer and will no longer return to it. The last level affected by the combination of Big Data with an integrated marketing management strategy is the optimization of marketing and its effectiveness. Data gives the opportunity to optimize marketing expenses and to continuously monitor and systematize marketing programs in channels using analysis, measurement or testing. So, it can be concluded that data play a huge role in today's world. Thanks to them an advantage can be gained or even maintained. By means of precise analysis, we can gain meaning more than other units that have a similar range of data.

3. Integrated Strategic Analyses and Managerial Cockpits (Dashboards) – Case Study Method Research Results

Integrated reporting at DB uses integrated strategic thinking to identify sources of creation of value and their interconnections, thus helping to avoid the risk of information being taken into account in separate "fragments" and in multiple, disconnected and static communications. [9]. Integrated reporting at DB is a new approach to corporate reporting that aims to present, how the organization is organized and creates and maintains value by integrating financial and non-financial information in a clear, concise, consistent manner.

Before we go into the results of in-depth case studies, it is worth to present the results of our own research on integrated strategic analyses, which allowed us to analyse such marketing strategies and determine online and offline marketing indicators for 11 companies.

These indicators were presented by G. Błażewicz in his book Revolution of Marketing Automation. How to use the potential of Big Data [10]. However, it is a presentation of contemporary indicators also concerning e-commerce. Coming back to the surveyed companies from the industrial and consumer goods market, the following types of classic ones – resulting from integrated strategic analyses (BCG, GE, MA, ADL, Hoffer) and new indicators – will be presented. Classical indicators are: market share index (ADL), profit index (BCG), sales volume index, innovation index (GE), sales share index (BCG), financial flow index, ROE and KE index (MA), competitive position index (Hoffer), product export index, sales value index, campaign effectiveness index. New indicators include: website visit rate, online sales profit ratio, online revenue ratio, customer loyalty ratio, production capacity ratio, profit size ratio on the Polish and foreign markets, innovation ratio, cost of acquiring new customers CAC, export volume ratio, TWR ratio, product quantity ratio, sales ratio on new segments, website entry rate. Classical indicators can be supplemented in detail by analysis of categories, which are at the coordinates of these matrices. The above indicators resulting from portfolio matrices have been included as classical indicators and new indicators have been added, which are intended to complement the previous ones. In addition, further indicators resulting from the growing scope of Big Data will be recommended after further analysis. The above indicators confirm the thesis that the structure of analysis is wider than that used by companies in the SME sector. **Therefore, it is possible to verify the thesis that the power of marketing analytics influence on financial results depends on the advancement of analytical orientation and analytical paradigm, and even on the processes of data and information acquisition and advanced analytics presented in dashboards in the following way management as well as analytical**. In the indicators presented above, we observe the marketing and financial interface, but it is only the application of the dashboard managerial cockpits method that allows us to present correlations and the formation of individual correlations in the past and to indicate the prognostic approach. As a result, thanks to dashboards we can see how the company develops and evolves. We need to track changes in the company through strategic and tactical dashboards that include monitoring and control indicators. This allows us to enrich and improve marketing strategies and increasingly strengthen its competitive position in the market.

Dashboards can include several panels of key categories. The key categories are: customers, product, brand, advertising, PR, events and trade fairs, direct marketing, website research and online marketing, sales, sales channels, prices and discounts, collateral marketing, environment – micro- and macro environment. To sum up, the experimental dashboard becomes a contemporary mirror of the functioning of the company. The double strength of today is Big Data and indicators monitoring and analysing strategic choices of the company through dashboard systems. The data presented in the dashboard allow for quick analysis at the level of media purchase, costs, indicators and user behaviour – they are carried out necessary to close the value transaction. A full success can be said when the results of activities are combined with sales data.

The in-depth case study method was also used in the author's research, for which dashboards were developed, both in terms of financial and marketing results. Initial work on the construction of the dashboard started with a literature review of the subject and a bachelor's thesis was written by a practitioner running an Internet company. In the chapter he presented the practical use of dashboard for a small company. The in-depth case studies, in turn, concern industrial companies that redefine their strategies, which can be seen in the dashboards developed. Trial visualization of one of the dashboards will be possible in the final version of the chapter. These companies, through the applied dashboards, implement integrated strategic management, i.e., they have evolved from integrated strategic analyses through marketing scorecard or BSC to dashboards. They show the interactions between the

financial and non-financial dimensions of activity. Thanks to dashboards, both strategic and tactical, internal barriers to achieving strategic goals of companies are blurred, as well as decision making, which embrace the achievement of value not only in the short term, but also in the medium and long term.

Case study ABC Company

At ABC Company, since 1998, customer satisfaction surveys have been conducted. The need for their implementation resulted primarily from the implementation and certification of a management system compliant with ISO standards. These measurements have also been useful in marketing activities the sample was chosen national group, the most significant for the company's customers. This list has been constant for many years, which is why there is a certain repeatability of the test results. The issues raised in the survey concern the key areas of the company's activity. These include consecutively numbered from 1 to 7 issues that are interpreted:

1. **The general image of the company as a supplier of filtering respirators.**
   In the general assessment of the largest clients, the company is highly rated. This may be the result of a large participation of the company in trade fairs, exhibitions and industry symposia, as well as strongly visible advertising in periodicals related to Occupational Health and Safety. During the year, customers with understanding came to a small price increase.

2. **Consideration by the wishes and expectations of the customer.**
   In the case of this parameter, account should be taken of the 2017 price reserve for products, as well as a very dynamic extension of offers for commercial goods. The customer is comprehensively supplied.

3. **The scope of the offer.**
   At this point, the offer of filtering half masks is evaluated. High marks obtained in recent years are the result of introducing new products or with higher protective parameters or a lower price. The ABC company is the largest Polish producer of respiratory masks. The company performs them in all filtration classes and two shapes. As a result, it offers the largest range of products that can differ not only from technical parameters, but also from packaging and marking.

4. **Timeliness of orders completion**
   The general, high evaluation of the timeliness of orders results from the high production flexibility of the company resulting from the small technical complications of the basic products. Changing the assortment manufactured at a given moment does not result in almost any production stoppages. The fall in satisfaction in order completion in 2008 and 2009 was the result of sudden jumps in market demand for filtering half masks as a result of the emergence of new threats in the form of SARS, bird flu or new influenza. Large production resulted in a prolongation of time from receiving the order to sending the goods to the customer. The result in 2017 is still great.

5. **Service in the form of trainings for clients**
   After 2013, when a significant decline in training assessment was noted, the result should be described as positive. The improvement of the graphic part of the

presentation and the planned training plan will improve the assessment. On the basis of this parameter, it can be seen that the systematic work of the marketing department, the assumption of the need to conduct training has brought excellent results.

6. **The pricing policy of the company**
   Price is one of the most rated points by business customers. In the case of ABC, the recipients who are largely commercial intermediaries also evaluate the pricing policy. It is often about willingness or unwillingness to cooperate. The results achieved in the analyzed period are primarily the result of a stable pricing policy. This is not about achieving the lowest prices, but about the certainty of their invariability during the year and the preservation of another offer for intermediaries and final recipients.

7. **Overall Rating maintaining relationships with customers**
   At this point, customers evaluate the level of direct relationships with them. Achieving a very good result here results from the employment in the marketing department of employees with high personal culture who are able to listen to the client and talk to him not only on topics related to products.

For further study selected from among the above indicators are presented in Table 1.

Table 1. Selected statistically significant indicators

	Sales-revenues Correlation	**Sales-costs Correlation**
The overall image of the company as a supplier	-0.8	
Timeliness of order fulfilment	-0.7	
The pricing policy of the company		-0.5
Number of recipients	-0.5	-0.5

Source: Own study

Let's look at "the overall image of the company as a supplier". The value it adopts in relation to the sales revenue is -0.8, which means that this relationship is very strong. So, in this case, it means that the better the company's image, the lower the sales revenue. The next indicator is "punctuality", here as in the previous case the correlation value is very high (-0.7), so the timelier deliveries are made, the lower the sales revenues. At this point, it is worth looking again at the whole. Undoubtedly, a significant part of the analysed indicators can be combined into indicators of the so-called soft, which are related to the flexibility of the decisions made. Negative correlation in relation to flexibility and a decrease in liquidity is quite obvious because most often the flexibility manifests itself: lack of debt collection, implementation of unprofitable or low-profit projects, and probably the most important – extended payment terms. It can also directly affect or result from the flexibility of the pricing policy, which has a direct impact on the revenues or costs that the company achieves in both the short and long-term. If the company competes on the market with the image as we can see, it can affect significantly on the achieved financial results. On the other hand, without a proper image, it would be difficult, if not impossible.

We should remember that analytics is the ability to interpret data for which a human factor is essential. Narration in the description is necessary to fully deduce and draw correct relationships, trends or dynamics. Technology alone will not answer the business decisions to be taken, although the industry is working on building solutions for machine learning, and ultimately to use artificial intelligence for modelling or prediction [11]. The results and conclusions of these studies are included in the company's analytical dashboard.

REFERENCES

[1] Kaushik, A. (2016). digital-dashboards-strategic-tactical-best-practices-tips-examples/ https://www.kaushik.net/ avinash/ (27.11.2016).
[2] Paszkiewicz, R. (2016). The discreet charm of digital marketing. Marketing in practice, (10).
[3] Jefferey, M. (2015). Analytical marketing. Warsaw: Helion
[4] Grigsby, M. (2015). Marketing Analytics: A practical guide to Real marketing science. KoganPage, http://www.webanalyticsassociation.org
[5] Golik-Górecka, G. (2016b). Implementation of the strategy and the multi-paradigm of analytical marketing. Scientific works of the University of Economics in Wrocław, (444).
[6] Bid Data. What are they and why do they have meaning? 2017.
[7] Knowledge centre. https://www.sas.com/pl_en/insights/big-data/big-data-marketing.html, (07.11.2017)
[8] Wedel.M, KannanP.K., Marketing Analytics for Data Rich Environments, "Journal of Marketing" 2016, Special Issue, vol. 80, p. 109.
[9] Adams, S., & Simnett, R. (2011). Integrated reporting: An opportunity for Australia's not-for-profit sector. Australian Accounting Review, 21(3), 292-301. https://doi.org/10.1111/j.1835-2561.2011.00143.x
[10] Błażewicz, G. (2016). Revolution with Marketing Automation. How to use the potential of Big Data. Warsaw: PWN
[11] Łada-Szewczenko, Ł. (2017). Analytics in digital campaigns. W: Development perspectives of online advertising in Poland. Report 2016/2017. iab Poland, They.pl. Warsaw: HBRP (2)

Comparison of Impact of Local Data Smoothing Methods on Identification of Business Cycle Turning Points

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1. Introduction

The exploration of business cycles is one of the main sources of assessment of the current and future economic situation. Over the years, many methods of analysis were developed, among which an econometric approach and Fourier analysis can be mentioned. Recent research, however, shown that hidden Markov models ([1], [2]) proved to be an excellent alternative for the classical methods. Using the combination of a few sophisticated algorithms, such as Baum-Welch algorithm, Viterbi algorithm, and Monte Carlo simulations, it is possible to determine the pattern in the analysed time series, which can be used to find the key points, i.e., the turning points, where the time series changes its dynamic or the asymptotic direction (see [3], [4]). It can be also used to the business cycle synchronization analysis (see [5], [6], [7]), early warning signalling ([8]), and convergence analysis (see [9]). Recently this method was used as a basis to construct a new measure of similarity between time series (see [10]).

Compared to other methods the main advantage of the hidden Markov model (HMM) and Viterbi path (VP), considered as a pattern recognition tool, is almost lack of assumptions to be fulfilled. This is why HMM method is more general in the sense of the range of application for the whole variety of input data.

There is, however, one aspect of using HMMs and VPs, which could be considered as a drawback. Obviously, results – as in any other method – are closely related to the input data.

The difference is, that all the results are relative not only to the length of data but also to their magnitude. Finding the most probable realization of the path, called the Viterbi path, which corresponds to the underlining pattern, we want to discover, implies that adding just one more observation may change the whole historic interpretation. This highly vulnerable to the input data can be revealed by this not so hypothetical example. Consider the relatively small crisis. On the background of the longer period, where there could be many bigger crises, this particular one can seem as not a crisis at all. On the other hand, let's consider the global economic recession, like the one in 2008-2012. Against such a big crisis, other, smaller crises may be insignificant. This means, that in the context of one big crisis, only turning points related to this crisis could be identified. Meanwhile, all the turning points are important – there are no "bigger" or "smaller" turning points. Of course, we could limit the considered period. Unfortunately, this would also limit the analysis and could lead to wrong conclusions.

It doesn't have to be the or-or situation. It is possible to use the whole range of data and find the turning points besides the obvious ones.

The goal of the research was to show a solution to the presented problem, which allows to maintain the length of input data and at the same time give the proper turning points within the whole period under consideration. The turning point detection is still treated as a problem of pattern recognition, but before the application of the Baum-Welch and Viterbi algorithm, the input time series is adjusted using local data smoothing method. Making the bigger peaks

or troughs a little smaller in a way, that their amplitude is comparable with other phases of the business cycle, that was observed in the history, it is possible to get an accurate identification of the turning points, without losing the information about the rate and direction of changes.

In this chapter, the parametrized method of proportional, local smoothing is presented.

Depending on the parameter, which can be interpreted as a degree of smoothing, we can get a different business cycle turning points approximation. The indication of choosing the optimal value of the parameter is given, and the whole proposed method based on the HMM and VP is validated on the basis of the exemplary macroeconomic data, namely industrial production in the selected EU countries.

The method proposed in this chapter seems to be a very effective precomputing step, which allows improving the accuracy of the analysis performed with the use of the HMM approach.

Besides the good theoretic properties, computational simplicity of the method, and ease of interpretation of the results, the main contribution of this modification to the existing theory and practice, is the extension of the scope of applicability of the HMM and VP. Thanks to the minor modification of the data, the range of possible analysis and the potential of getting an extra information seem to be quite high. Without this modification, rather the length of the considered time period and the number of states were taken into account as a remedy to the relativeness of the results.

This chapter consists of 5 sections. After the introduction, in Section 2, we present the basic facts about HMMs and VPs. Some examples of macroeconomic character are added to illustrate the problem. The third section contains a description of the method of local smoothing. Data characteristics, used in this research, together with the exemplary usage of the proposed procedure, presentation, and interpretation of the results, is given in the fourth section. The chapter ends with a summary in Section 5.

2. HMMs and VPs

In this section, the brief introduction to the theory of hidden Markov models and Viterbi paths is presented. We skip the mathematical details in favour of giving the ideas behind these concepts. We will also illustrate the turning points identification problem with the use of the method based on HMM and VP.

The HMMs are present in the literature at least since the 60s of the previous centuries and are the generalization of the Markov models ([2]) by adding an extra layer. Based on the visible sequence of observations we want to discover the underlying, unobservable path of states. The states are the representations of some kind of pattern (if the pattern exists) hidden under the visible layer. Formally, HMM $\{X_k, Y_k\}_{k\geq 0}$ is a discrete stochastic process satisfying the following conditions:

- the unobservable process $\{X_t\}_{t\geq 0}$ is a homogenous MC with a finite state space S,
- conditionally on the process $\{X_t\}_{t\geq 0}$ the observations $\{Y_t\}_{t\geq 0}$ are independent, and for each t the conditional distribution of Y_t depends only on X_t.

In applications, the normal HMM is often used, which refers to the case where Y_t has a Gaussian distribution. This class of models is widely used in the areas, where the pattern recognition is explored, like speech, handwriting, gesture or voice recognition. HMM are also used in bioinformatics in the process of sequencing the DNA. In macroeconomics, HMM proved to be useful in e.g., business cycles synchronization analysis, turning points identification, construction of early warning indicators or convergence analysis.

Estimation of the HMM parameters may be done with the use of the Baum-Welch algorithm (see [11]). Unfortunately, model parameters may be far from optimal. This is because they depend strongly on the initial values. Checking hundreds or thousands of

possibilities, which is equivalent to the Monte Carlo simulations, may increase the chance of finding the global optimum ([12]). The Baum-Welch algorithm is deterministic, but due to these simulations, the whole procedure has a non-deterministic character and may be quite time-consuming.

Even for optimal (or quasi-optimal) model parameters, the output sequence of numbers is in fact only the set of probabilities, which need to be transformed into the correct order of states. There are several methods used in practice. Historically (see [3], [13]) the oldest are connected with so-called smoothed probabilities

$$w_t(i) = P(X_t = i|Y_1 = y_1, Y_2 = y_2, \dots, Y_T = y_T) \quad (1)$$

or the filtered probabilities

$$f_t(i) = P(X_t = i|Y_1 = y_1, Y_2 = y_2, \dots, Y_t = y_t), \quad (2)$$

where T stands for the last time point of the considered period.

In the simplest case $\underset{i}{\operatorname{argmax}}\, w_t(i)$ or $\underset{i}{\operatorname{argmax}}\, f_t(i)$ gives this assessment of the states of unobservable Markov chain at a fixed time t for all considered points of time. This kind of "local decoding" or "step by step decoding" of the path of states of the hidden Markov chain may be quite ineffective. There is, however, another, more complex and adequate (from the economic point of view) approach: instead of dealing with moments of time one by one, we can use a more effective approach called Viterbi algorithm ([14]), which takes under consideration the whole period covered by the analysis. Formally speaking, we determine the path $(x_1^*, x_2^*, \dots, x_T^*) \in S^T$ such that:

$$P(X_1 = x_1^*, X_2 = x_2^*, \dots, X_T = x_T^*|Y_1 = y_1, Y_2 = y_2, .., Y_T = y_T) = \max_{(x_1, x_2, \dots, x_T) \in S^T} \{P(X_1 = x_1, X_2 = x_2, \dots, X_T = x_T|Y_1 = y_1, Y_2 = y_2, \dots, Y_T = y_T)\}. \quad (3)$$

The Viterbi algorithm is an example of dynamic programming, which gives on output the most likely sequence of hidden states which are commonly called the Viterbi path. Combining the HMM and VP allows performing a wide range of analysis. A great advantage of this approach over econometric methods are the weak assumptions of applicability and straightforward interpretation.

In this chapter, we restrict ourselves to the analysis of normal HMM with two-element state space S = {0, 1}. The state 1 is associated with the periods of relatively good conditions and state 0 is associated with a worse situation. Time series under the analysis should satisfy the conditions.

$$Y_n|_{X_n=0} \sim N(\mu_0, \sigma_0) \text{ and } Y_n|_{X_n=1} \sim N(\mu_1, \sigma_1). \quad (4)$$

We additionally assume that $\mu_0 < \mu_1$ to ensure the same order of states in each considered case (state 1 is associated with a greater mean value).

In computations 1000 Monte Carlo simulations were used. Due to the stability of the results obtained for exploited time series and a small number of considered states, a number of repetitions turned out to be enough.

This, based on a Viterbi algorithm, global approach, comparing to the local, has one drawback. Consider the global financial crisis, like the one started in 2007-2008. Against such a big crisis, other, smaller crises may be insignificant. This implies, that in the context of one big crisis, not all turning points will be identified. We can see an example of such a situation in Fig. 1, where monthly percentage change of production in the industry for the euro area from January 1991 to March 2018 is given together with the turning points identified by a method based on the HMM and VP. Dataset is taken from official statistics published by the Eurostat.

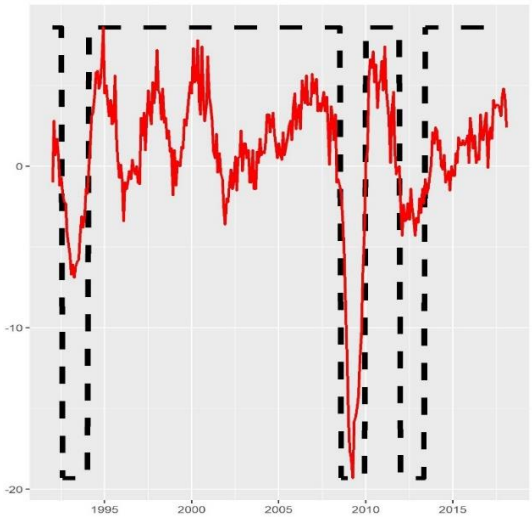

Fig. 1. Monthly percentage change of production in the industry for the euro area from January 1991 to March 2018 (red, solid line) vs. VP (black, dashed line).
Source: Own calculations

In Fig. 1 we have an example, where only three troughs and three peaks are identified, whereas according to OECD for euro area there were more turning points in the economy during the considered period. All reference turning points are given in Table 1. Visually these turning points can be found on the graph, but relative to the crisis 2008-2010 they are neglected by the method.

Let's make the comparison with the results for the same time series but in a shorter period – till January 2009 only. Industrial production for euro area with the corresponding VP is given in Fig. 2. Some extra turning points were identified compared to the situation in Fig. 1.

Table 1. List of reference turning points in the euro area in years 1990-2018 based on OECD Composite Leading Indicator (CLI)

Date	Turning point	Date	Turning point
1991, February	Peak	1993, August	Trough
1995, April	Peak	1997, January	Trough
1998, January	Peak	1999, January	Trough
2001, January	Peak	2003, July	Trough
2008, February	Peak	2009, June	Trough
2011, May	Peak	2013, March	Trough

Source: Own calculations

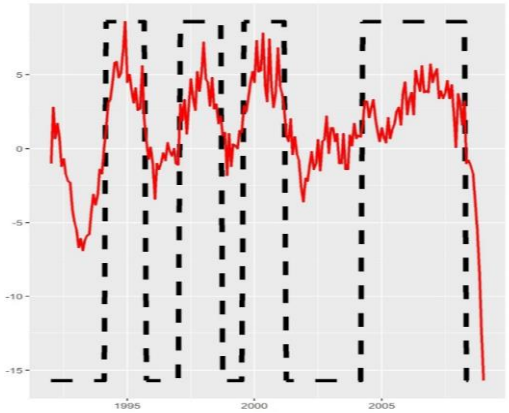

Fig. 2. Monthly percentage change of production in the industry for the euro area from January 1991 to January 2009 (red, solid line) vs. VP (black, dashed line).
Source: Own calculations

In this chapter, we are not referring to the accuracy of the proposed method of turning points identification because – depending on the data – some kind of leading signals are possible.

We simply stated the relative nature of the mechanism of turning points identification. In longer timeline peaks and troughs of smaller amplitudes may be omitted in the face of changes of larger magnitude. All turning points, however, are important. On the other hand, changing the time horizon may lead to wrong conclusions. Solution to this problem is based on the local smoothing method and is described in the next section.

3. Local Smoothing Method

In the problem of business cycle turning points identification, all peaks and troughs are equivalent in terms of importance. It doesn't matter how big was the change, it's only important that it was significant. In this section, we present the proposition of the method, which allows scaling the period with the greatest magnitude by a decrease of the values proportionally to the other crises/growth preceding the considered one. We will refer to this method as the local smoothing.

The first doubt concerns the choice of the neighbourhood of the point with the greatest value (up to the absolute value). It is the formal definition of the word "local". An imposing solution is to choose the period between two nearest, lying on opposite sides troughs if we consider a peak, and two closest peaks if the point of the greatest magnitude is a trough. In case there are no peaks/troughs after the point under the consideration yet, the whole remaining part of the time series should be chosen. In fact, however, the neighbourhood should be defined accordingly to the given datasets. For the examples presented in this chapter, the OECD reference turning points were used as a limit date for the neighbourhood.

After the neighbourhood is chosen, the smoothing can be performed. The description is supported by the schema shown in Fig. 3 and Fig. 4. We will exploit the case of the crisis (the situation with the good economic climate is analogous) and use the following notation:

y_t – time series before the local smoothing,
$\widetilde{y_t}$ – time series after the local smoothing,
B – the beginning of the local neighbourhood (left end of the interval),
E – end of the local neighbourhood (right end of the interval),
TP – extremal point of the crisis (turning point),
M – the minimal point of all the crises preceding the considered one,
$s \in [0; 1]$ – smoothing parameter.

The smoothing formulas describing the decreasing of the values proportionally to the other crises preceding the considered one are given separately for the interval from *B* to *TP*.

$$P_B = \frac{B-M+s(M-TP)}{B-TP}, \quad \widetilde{y_t} = P_B * y_t + B(1 - P_B) \tag{5}$$

and from *TP* to *E*

$$P_E = \frac{E-M+s(M-TP)}{E-TP}, \quad \widetilde{y_t} = P_E * y_t + E(1 - P_E) \tag{6}$$

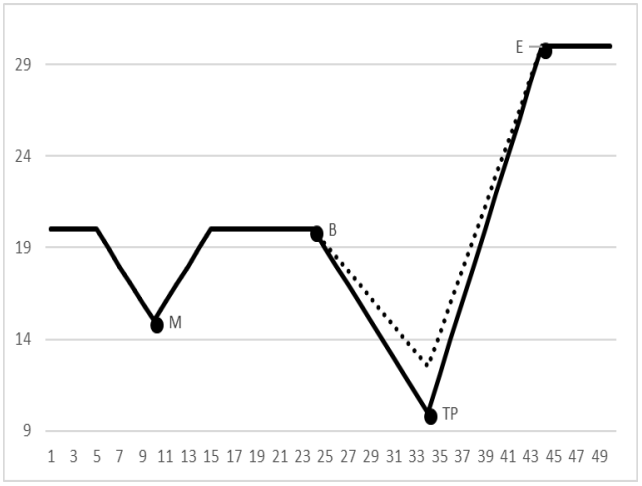

Fig. 3. Schema of local smoothing with the smoothing parameter *s=0.5*.
Source: Own calculations

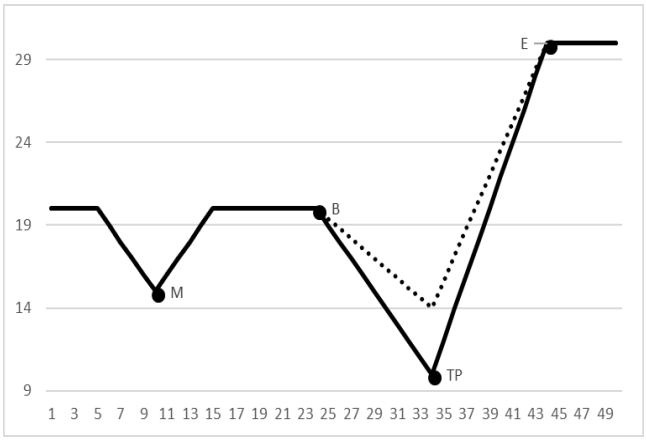

Fig. 4. Schema of local smoothing with the smoothing parameter *s=0.2*.
Source: Own calculations

For the smoothing parameter *s=1* we get exactly the same, non-smoothed, original version of the time series. The smaller the parameter, the smaller the magnitude of the crises in the whole interval [*B*; *E*]. In the next section, some economic examples of the application of the method presented in this section are given.

4. Empirical Analysis

For the illustration purposes, the time series of the monthly percentage change of production in the industry in Germany and the euro area for different periods of time are given. All datasets were published by the Eurostat. The local smoothing neighbourhood was chosen based on the reference turning points published by OECD.

In Fig. 5 there are results of the local smoothing for the smoothing parameter *s=0.7* and the euro area in years 2000-2018. Just a little change in the amplitude of the biggest crises allows identifying two extra turning points (one peak and one trough).

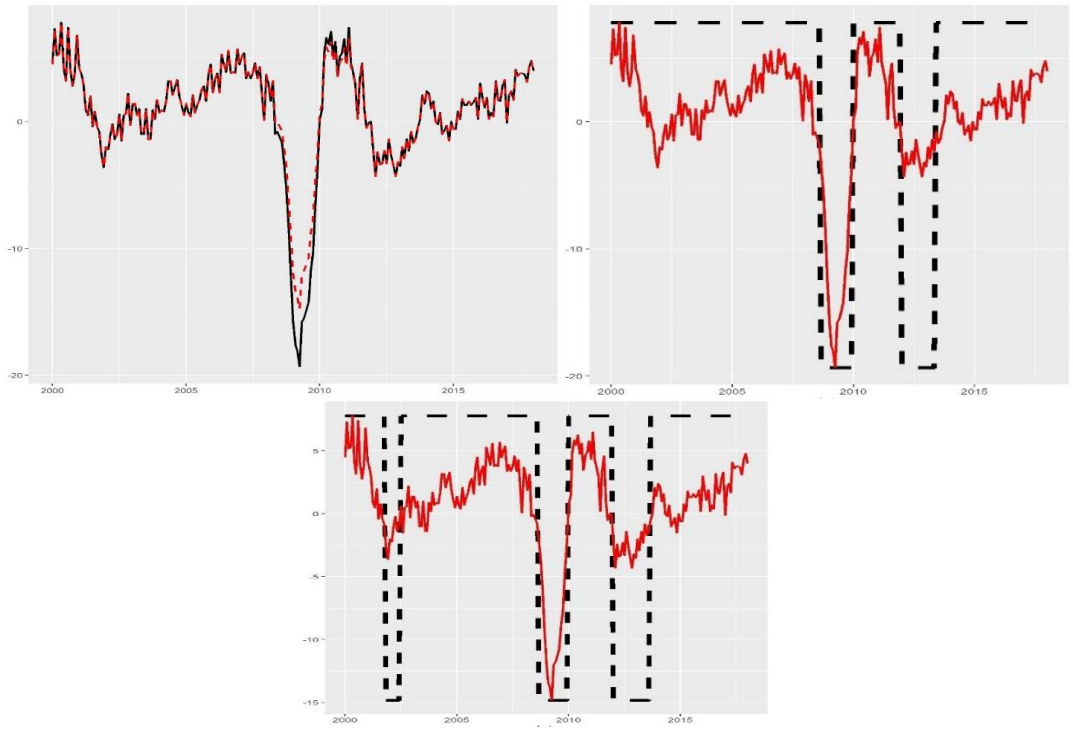

Fig. 5. Turning points identification of the industrial production in the euro area in 2000-2018 without (bottom row, left panel) and with (bottom row, right panel) local smoothing with the smoothing parameter *s = 0.7* (top row). *Source: Own calculations*

Results for the same time series but for the period from January 1991 to March 2018 are given in Fig. 6. In this case thanks to the local smoothing with the smoothing parameter *s=0.4*, three additional business cycles were identified.

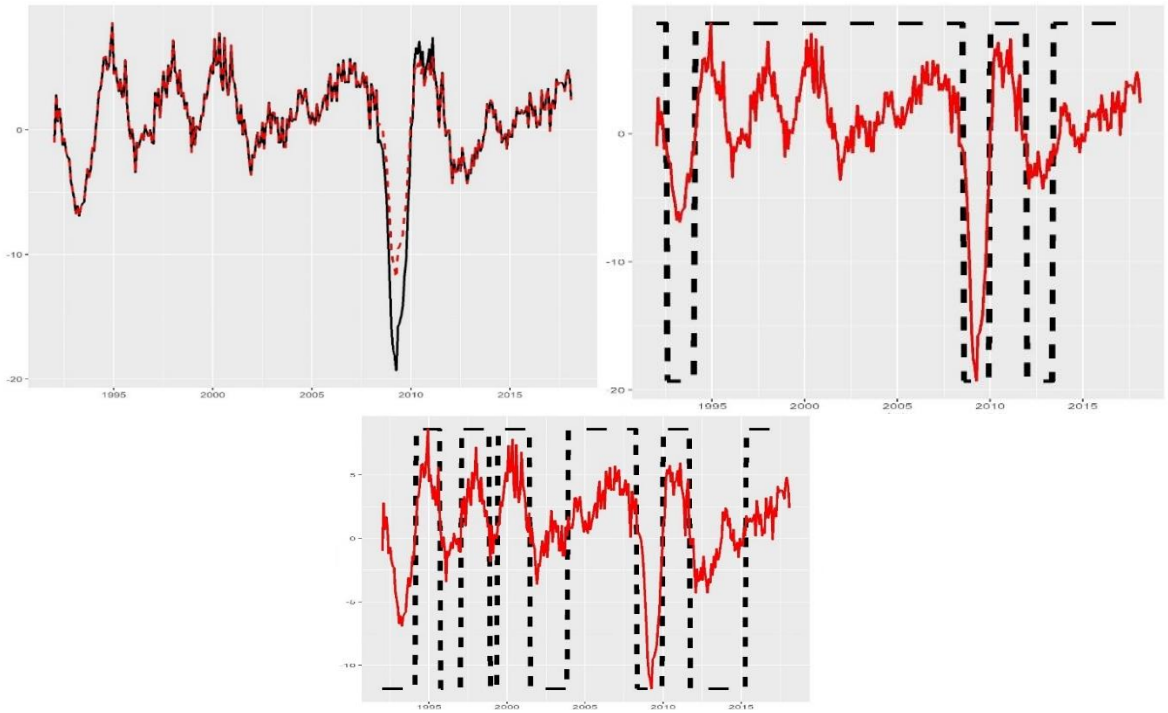

Fig. 6. Turning points identification of the industrial production in the euro area from January 1991 to March 2018 without (bottom row, left panel) and with (bottom row, right panel) local smoothing with the smoothing parameter *s=0.4* (top row).
Source: Own calculations

The global economic recession in 2008-2012 has touched almost every European country.

The size of this recession was so much greater compared to the crisis's periods before, that identification of many of them becomes impossible with the use of the HMM. Using as an example the industrial production in Germany in years 1991-2018 (Fig. 7) and 2000-2015 (Fig. 8) we can witness the differences in the number of turning points identified using the VP concept. In this chapter, we skip the problem of an accuracy of turning points identification or the leading properties of the method. However, we can at least verify the number of turning points for Germany according to the OECD (see Table 2) with those identified by the HMM method depending on the degree of local smoothing. In the case of the period 1991-2018, 14 turning point occurred, while without the smoothing (see Fig. 7) only 8 were identified. Using the smoothing parameter $s=0.4$ we are able to get all vital points[1].

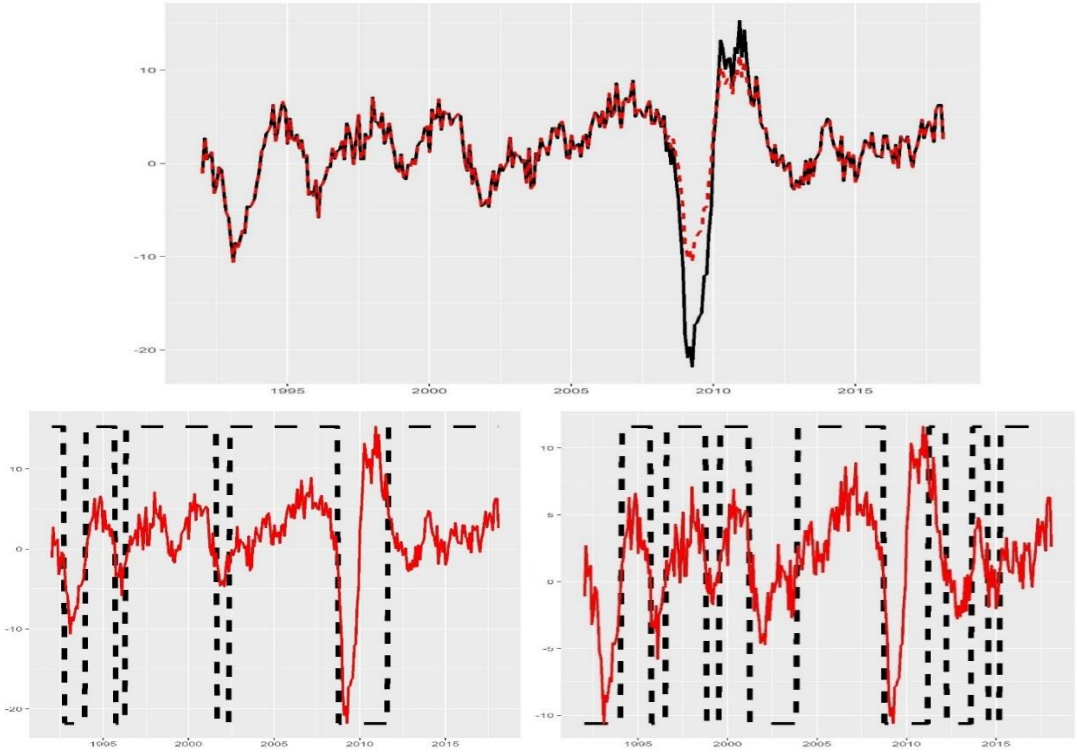

Fig. 7. Turning points identification of the industrial production in Germany from January 1991 to March 2018 without (bottom row, left panel) and with (bottom row, right panel) local smoothing with the smoothing parameter $s=0.4$ (top row).
Source: Own calculations.

Table 2. List of reference turning points in Germany in years 1990-2018 based on OECD Composite Leading Indicator (CLI)

Date	Turning point	Date	Turning point
1991 March	Peak	1993 September	Trough
1995 June	Peak	1996 March	Trough
1998 January	Peak	1998 December	Trough
2001 April	Peak	2005 February	Trough
2008 March	Peak	2009 June	Trough
2011 June	Peak	2013 March	Trough
2014 February	Peak	2015 September	Trough

Source: Own calculations

[1] The first turning point is not present, because the beginning of the considered time is already the 0 state.

In Fig. 8 the situation with the shorter period, from January 2000 to January 2015, is considered, where a number of turning points in the OECD reference time series is equal 7.

Without the use of local smoothing only two turning points – those related to the great recession – are identified. By smoothing with the smoothing parameter *s=0.7* two more turning points were identified, whereas parameter *s=0.5* gives all 7 turning points[2].

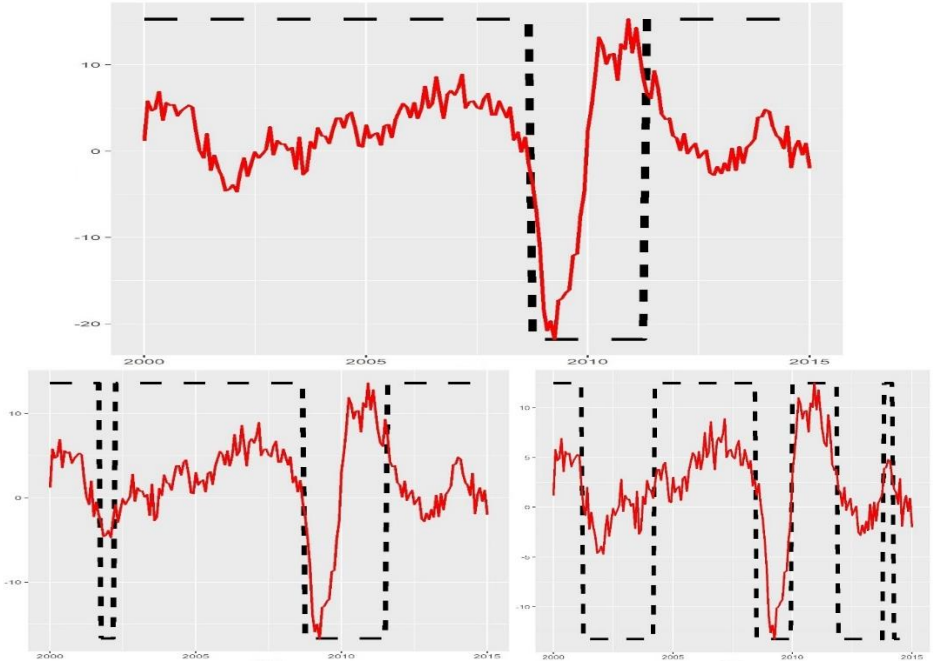

Fig. 8. Turning points identification of the industrial production in Germany from January 2000 to January 2015 without (top row) and with local smoothing (bottom row) with the smoothing parameter *s=0.7* (left panel) and *s=0.5* (right panel)
Source: Own calculations

The question remains what value of the smoothing parameter should be used. The answer is: it depends on the situation. The proposed rule of the thumb is to use the greatest value of the smoothing parameter, which still allows identifying all interesting turning points of the given time series.

5. Conclusions

Hidden Markov modelling has proved to be an effective method of analysing economic time series, like turning point identification, evaluation of business cycles synchronization or early warning signalling. The main advantages of this method are weak assumptions of applicability and ease of interpretation. However, due to the relative nature of the mechanism of turning points identification, some peaks or troughs of smaller amplitudes may be omitted in the face of changes of larger magnitude. In this chapter, the parametrized method of proportional, local smoothing is presented. Depending on the smoothing parameter additional business cycle turning points approximation can be found. This kind of precomputing step allows improving the accuracy of the analysis performed with the use of the HMM approach.

The concept of local smoothing was verified on the monthly industrial production time series with different length periods.

The HMM method makes it possible to identify turning points of business cycles but can be also generalized for other applications (like convergence analysis). Other techniques of

[2] About accuracy of turning points identification see [12].

smoothing can be considered as well. Furthermore, considering more than two states on the Viterbi path (low/medium/high or even more) is possible. Nevertheless, the presented method seems to have a great potential, especially if you consider its almost automatic applicability with the complexity of the dedicated, econometric methods.

REFERENCES

[1] Hamilton J.D. (1994). Time Series Analysis, Princeton University Press, Princeton, New Jersey.

[2] Cappé O., Moulines E., Rydén T. (2005). Inference in Hidden Markov Models, Springer Series in Statistics, Springer-Verlag New York.

[3] Chauvet M., Hamilton J.D. (2005). Dating business cycle turning points. NBER Working Paper No. 11422.

[4] Bernardelli M. (2015). The procedure of business cycle turning points identification based on hidden Markov models. Analyzing and forecasting economic fluctuations. pr. zb. pod red. Konrada Walczyka, "Prace i Materiały Instytutu Rozwoju Gospodarczego", IRG SGH, Warszawa, No. 96, pp. 5-23.

[5] Krolzig M-H. (1997). Markov switching vector autoregressions modelling. Statistical inference and application to business cycle analysis. Berlin: Springer.

[6] Smith P. A., Summers P. M. (2005). How well do Markov switching models describe actual business cycles? The case of synchronization. Journal of Applied Econometrics. 20(2): pp. 253-274.

[7] Dufrénot G., Keddad B. (2014). Business cycle synchronization in East Asia: A Markov switching approach. Economic Modelling. 42: pp. 186-197.

[8] Abberger K., Nierhaus W. (2010). Markov-switching and the Ifo business climate. The Ifo business cycle traffic lights. Journal of Business Cycle Measurement and Analysis. 1(2): pp. 1-13.

[9] Bernardelli M., Próchniak M., Witkowski B. (2017). The Application of Hidden Markov Models to the Analysis of Real Convergence, Dynamic Econometric Models, Vol. 17 pp. 59-80.

[10] Bernardelli M. (2018). Hidden Markov models as a tool for the assessment of dependence of phenomena of economic nature. Acta Universitatis Lodziensis. Folia Oeconomica nr 338(5) / 2018, pp. 7-20; DOI: http://dx.doi.org/10.18778/0208-6018.338.01.

[11] Baum L.E., Petrie T., Soules G., Weiss N. (1970). A maximization technique occurring in the statistical analysis of probabilistic functions of Markov chains. The Annals of Mathematical Statistics. 41(1): pp. 164-171.

[12] Bernardelli M. (2013). Non-classical Markov Models in the Analysis of Business Cycles in Poland, "Roczniki Kolegium Analiz Ekonomicznych SGH", No. 30, pp. 59-74.

[13] Harding D., Pagan A. (2012). A comparison of two business cycle dating methods. Journal of Economics & Control, no. 27, pp. 1681-1690.

[14] Viterbi A. (1967). Error Bounds for Convolutional Codes and an Asymptotically Optimum Decoding Algorithm, "IEEE Transactions on Information Theory", vol. 13, pp. 260-269.

Effectiveness Versus Talent Management, is Francois Gagné right? Evidence from Life Insurance Market in Poland

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Keywords: Competencies, effectiveness, life insurance, management, organization, talent

1. Talent management

Two decades have elapsed since McKinsey consultants implemented the term "war for talent" and studies significantly exerted an impact on talent. During this time, talent management has become a subject of the scientific discourse and a key factor of managerial debate as well as organizational practice, human resources departments particularly [3].

According to the opinions claimed by Sparrow [4], talent is to be perceived through four "perspectives" as human capital that is embodied in the individual's capability to categorize, a productive economic value, social capital, political capital and cultural capital. Additionally, an analysis of literature on human resources management justifies a statement that the manifestation of talent in the working environment is determined not only by external factors but also by concealed, evolving and intervention components which, according to Scullion and Collings [4] also a significant part in this process. These researchers also tend to accept a subjective evaluation of talent while making an effort to gain confirmation through an implementation of multi-source constructs (e.g., 360°) and, in this manner, they reflect the significance on an adaptation of an individual talent and its interpersonal context. Given this scenario, the momentum is appropriate to address an updated state of TM literature. In recent years it has been observed increased interest in this field by both practitioners and academics all over the world, and TM research has focused on effectiveness [6, 2]. Authors claim the only indicator describes the contribution of talented people into organization properly, it is their effectiveness, and the characteristics of talented individuals are placed in top 10% of a scale. Therefore, we establish:

Hypothesis H_1: The professional, social and organizational competency level of talented agents is positively correlated with their effectiveness and

Hypothesis H_2: The professional, social and organizational competency level of talented agents is ranged [4.5-5.0] in each group of competence.

2. Methodology

In the research the inductive method was implemented, as it is particularly useful and adequate as the conceptual base [7]. It requires an expert approach to an analysis of the sample content, is based on a post hoc factor analysis [8], and also asserts a correct categorization of factors. The case study was constructed through the use of an iteration process, which was based on a consonance of theoretical assumptions and empirical evidence [9]. The implementation of a case study in the context of theory development enhances inductive research through the creation of an adequate theory that creates scientific progress and is testable [10]. The purpose of the conducted research was to identify whether the

talented salesforce competency level is related to their effectiveness, perceived as collected premium. The term of competency was implemented from Oleksyn [11]. These authors perceive competence as a construct whose elements include knowledge, attitudes and skills.

This constituted the basis to construct a model of the competences of an insurance agent by managers of the life insurance institutions examined (the most effective sales managers: the classification was made based on the results obtained for the period of 3 years preceding the research). The abovementioned construct, which was obtained with the use of the Delphic method and brainstorming, was divided into three components in accordance with the previously accepted definition.

3. Participants and Procedures

The sample consisted of 812 of the most effective life insurance agents (according to the collected premiums for the 5 years preceding the research), whose results placed them at top 10% of the whole workforce of each of the four companies (AVIVA, AMPLICO, NN, PZU), which possess the largest share in the market (combined 68.09%) according to the acquired premiums in years 2014-2017. The sample was complete (every agent who met the criteria was covered by the research). The agents completed the questionnaires constructed by top 10% life insurance managers of abovementioned companies (referring to their sales results as above). Each questionnaire was anonymous and put in an envelope when given to the researcher. A total of 812 sets of questionnaires were returned, with 16 being excluded due to extensive missing data or irregular patterns. The final response was 94.70%.

4. Measures

A competency questionnaire consisted of three groups competencies: professional competencies (expectation of client's needs, monitoring and utility of opportunities in competitive environment, marketing knowledge, acquaintance of office technique, data analysis, IT), social competencies (communicativeness, stress handling, effective negotiations, influencing clients, assertiveness, change attitude, self-motivation), organizational competencies (acquaintance of organizational characteristics, creating the positive image of organization, maintain good client relation, sales orientation). The professional behaviours of agents described in the categories of the individual competences underwent assessment. Each group of competences included additional test questions to assess the reliability of the scale created. Five-degree Likert scale was implemented in the research, ranging from 1 (the lowest level) to 5 (the highest one). The effectiveness of an agent was measured by the amount of yearly premium collected (this value was taken from the monthly reports of managers) for each company separately. This conception of the effectiveness is a determinant of human activity based on the Austrian School of Economics thinking. It reflects the relation between individual performance and organizational effectiveness [12]. Territorial scope of the research: Poland, duration of the conducted research: 2014-2017. The hypotheses were tested regarding the volume of agent's collected premium. Independence tests related to the research, point to the occurrence of a statistically significant connection between the level of competencies and collected premium. All the hypotheses were tested complex, excluding the redundant descripting variables. To test hypotheses, a multiple regression was conducted, with the yearly collected premium of an agent as the dependent variable, and the competency level as independent one. All the hypotheses were tested complex, excluding the redundant descripting variables.

5. Results

The level of the contribution obtained by insurance agents is on the average strongly correlated with the level of their competencies (r=0.5575) (Table 1).

Table 1. Descriptive statistics

Correlations	Social competencies	Organizational competencies	Professional competencies	Competencies	Financial outcome
Social competencies		0.1768	0.0712*	0.7642	0.5368
Organizational competencies	0.1768		-0.2018	0.5000	0.1555
Professional competencies	0.0712*	-0.2018		0.4873	0.2539
Competencies	0.7642	0.5000	0.4873		0.5575
Financial outcome	0.5368	0.1555	0.2539	0.5575	

*Explanations: * irrelevant coefficients at p>0.05.*

The contribution obtained by insurance agents is on the average strongly correlated with the level of their competencies (r=0.5575). This result is statistically significant. Taking into account the individual types of competencies, it becomes evident that they are all positively and statistically significant in relation to the agent's financial result; nevertheless, poor results were obtained here. It is only the dependence correlation between social competencies and the financial result that is on an averagely strong level (r=0.5368), while the correlation connection of organizational competencies with the financial result proved to be very weak (r=0.1555), and the connection between professional competencies an the financial result was weak (r=0.2539).

The influence of competencies in total and competencies from the individual groups on the agent's contribution was established using regressive models (Table 2).

Table 2. The competency level and the volume of premium collected – regression analysis

	β*	std. err.	β	std. err.	T (796)	p
Competencies	0.5575	0.0604	4169.2	451.6	9.2323	0.0000
Group 1	0.4990	0.0604	1951.0	236.1	8.2627	0.0000
Group 2	0.1161	0.0615	582.5	308.6	1.8875	0.0606
Group 3	0.2418	0.0607	1111.9	279.1	3.9836	0.0001

Explanations: β – standardised coefficients, β – classical coefficients*

In accordance with the models, where the competencies were jointly assessed, an increment of the general index of competencies by 1 result in an increase of the contribution on average by 4169.2. This result is statistically highly significant ($p<0.00005$), which serves to positively verify the $\mathbf{H_1}$ hypothesis.

When assessing the individual types of competencies, it becomes evident that an increase of the level of social competencies by a unit contributes to an increase of the contribution by an average of PLN 1,951.00. For the competencies from the group of organizational competencies, the regression coefficient was obtained on the level of 582.5, and for the competencies from the group of professional competencies: 1,111.9. The statistical significance of the regression coefficient for the competencies from the group of organizational competencies is the worst ($p=0.0606$). However, it is important that all the coefficients are positive, which means that an improvement of any competency contributes on average to an increase of the contribution. The problem consists only in the determination of the cost which needs to be incurred to raise the individual types of competencies. In accordance with the regression coefficients determined and the regression coefficients of the standardized model (β* coefficients), the impact of changes in the competencies from group 1

on the contribution is the strongest: it is ca. 4 times stronger than the impact of the competencies from group 2 and ca. 2 times stronger than the impact of the competencies from group 3. Therefore, even enough the competencies from groups 2 and 3 are highly assessed (Table 3), their impact on the contribution as compared to the competencies from group 1, which are assessed as the lowest ones, is weaker.

Table 3. Descriptive statistics

Statistics	Group 1	Group 2	Group 3	Average 1, 2, 3
Average	3.54	3.94	3.97	3.81
std. dev.	0.57	0.45	0.49	0.30
Min	1.83	2.71	3.00	3.04
Quartile 1	3.17	3.57	3.75	3.61
Median	3.50	4.00	4.00	3.74
Quartile 3	4.00	4.29	4.25	4.08
Decile 9	4.17	4.43	4.50	4.19
Max	4.67	4.71	5.00	4.63

Source: author's own research

The average result of those competencies that belong to group 1 proves to be the lowest (3.54), while the average results of those competencies that belong to groups 2 and 3 are similar to one another (3.94 and 3.97 respectively). The result of competencies from group 1 is considerably statistically different from the average result of the competencies from group 2 (*p=0.0006*) and the average result of the competencies from group 3 (*p=0.0257*). At the same time, the average results of competencies from groups 2 and 3 do not differ significantly (*p=0.2307*).

The situation related to the overall results looks interesting. The average level is the resultant of the averages for the individual groups, and it amounts to 3.81 here. Still, it is quite important that a low standard deviation (0.30) and quite a narrow scope of variability: 3.04-4.63 were obtained. Such results mean that those agents who possess a lower level of competencies from a given group quite frequently make up with higher levels of competencies from another group. The number of those agents who possess very good results in all the areas is not significant. This is the result of the fact that the maximum value for the whole is lower than the maximum value for the individual groups of competencies. At the same time, the number of those agents who achieved poor results in all the areas is not significant, either, which is the result of the fact that the minimum value for the whole is higher than the minimum value for the individual groups of competencies.

In the context of F. Gagne's thesis, according to whom the characteristics of talented persons are included within top 10%, this does not prove to be true of agents because the values of decile 9 are only slightly greater than the top limit of the typical area of variability (average ± standard deviation), which was 4.11; 4.39; 4.44 for the subsequent groups of competencies and 4.11 for the competencies in overall, which serves to negatively verify the **H_2** hypothesis.

6. Discussion, Implications and Future Directions

Our findings indicate the competencies are the key factor to estimate and predict the level of effectiveness, providing a useful background for investigating the nature of outstanding performance. Based on the preceding analyses we propose that high-level, individual effectiveness (talent level) can be a derivative of established level of competencies. Yet, we conclude with a consideration of limitations and future research environment. While this study employed mixed approaches, both qualitative and quantitative methods were cross-

sectional in organizational practice. A design assesses perceptions of talents at different points would be helpful in future research in the context of reducing potential problems of common method variance. Future investigations using a longitudinal design would provide more evidence in the relation to differences between talents and average and sub level performers and what factors would be crucial for average to talent transformation and finally, how to manage the mentioned process.

The research results are based on the individual perception from the most effective (according to the market share) life insurance organizations in Poland. Therefore, there is a need for validation in other institutions. The future research designs would also be improved by including other objective measures of performance (e.g., persistency ratios, peer assessments) and take into consideration the expectations of managers as well as the relation between an agent and manager and its reflection on the effectiveness [13].

Our findings have several practical implications for talent management. At first, they indicate that the level of competency is helpful for profiling the core requirements of talent performance. As such, this framework is valid and reliable for talent management HR activities (e.g., recruitment, development and retention of talented individuals). The abovementioned approach can ensure the high utility level throughout systematization of management practices rooted in organizational practices [14], instead of relying on strictly theoretical, vague prescriptions. Moreover, the competencies can be trained. As such, would become the key features of development programs. This approach particularly suits the life insurance sector context where HR practices are focus on the recruiting high potential individuals who can achieve the desired level of collecting premiums and a structured impact on behavioural factors is highly expected.

7. Conclusions

Organizations face an increasing pressure on the competitiveness in the current environment. The only key to succeed in today's market should, therefore, be ability to attract talented individuals and retain them in the long run. Ergo, talent management supports natural institutional development and growth through increasing the level of performance. Yet, there are not unequivocal factors determine outstanding performance across all dimensions.

While competencies are likely to be important in most occupational contexts, it is not authorized to neglect potential situational influences on the top-level individual effectiveness.

We initially assumed that to be a talent it is a derivative of highest ranks on every group of competence. Yet, the research results showed this assumption not to be necessary for describing outstanding performance in life insurance sector. Basis on our understanding of what constitutes top performance on well-established theory and empirical findings as abovementioned we claim, it is not necessary for HR departments to force individual workforce characteristics level till top 10% to achieve the best efficiency. Therefore, the Gagne's assumption is not appropriate for talent management in life insurance industry. Yet, we confirm the required level of competencies in each group is the core component of highest level, individual effectiveness.

Moreover, the equally if not more important finding it is the indication of competency compensation possibility. It seems to be a crucial element for organizational talent management programs and strategy, particularly in the context of salesforce training and development. HR managers can "tune up" this group of competencies that is most suitable for an individual and put less effort for other ones. This practical knowledge can be a contribution to organizational effectiveness achieving.

REFERENCES

[1] Michaels, E., Handfield-Jones, H., Axelrod, B. (2001). The war for talent. Boston. Harvard Business School Press.

[2] Gagné, F. (2011). Academic talent development and the equity issue in gifted education. Talent Development and Excellence 3(2), pp. 3-22.

[3] Janowski, A. (2018). Personality Traits and Sales Effectiveness: The Life Insurance Market in Poland. Journal of Entrepreneurship, Management and Innovation 14(1), pp. 143-160.

[4] Sparrow, P.R. (2009). When is talent not talent? Talent Management Review, pp. 18-20.

[5] Scullion, H., Collings, D. (2011). Global talent management. Routledge.

[6] Tansley, C. (2011). What do we mean by the term "talent" in talent management? Industrial and Commercial Training 43(5), pp. 266-274.

[7] Williamson, J.B., Karp, D.A., Dalphin, J.R., Grey, P.S. (1982). The Research Craft. Boston: Little, Brown.

[8] Kerlinger, F. (1986). Foundations of Behavioural Research. New York: Holt, Rinehart, Winston.

[9] Hensel, P. (2017). Legitymizacja badań organizacji. PWN. Warszawa.

[10] Gibbert, M., Ruigrok, W. (2010). The "what" and "how" of case study rigor: Three strategies based on published work. Organizational Research Methods, 13(4), pp. 710-737.

[11] Oleksyn, T. (2011). Zarządzanie zasobami ludzkimi w organizacji. Wolters Kluwer. Warszawa.

[12] Von Mises, L. (2014). Economic calculation in the socialist commonwealth, Alabama, Mises Institute.

[13] Wyszkowska, Z. (2014). Style kierowania a przejawy kultury organizacyjnej w przedsiębiorstwie. Nierówności Społeczne a Wzrost Gospodarczy. Studia i Prace WNEIZ US 39 (3), pp. 282-293.

[14] Jones, J, Whitaker, P., Seet, P., Parkin, J. (2012). Talent management in practice in Australia: Individualistic or strategic? An exploratory study. Asia Pacific Journal of Human Resources 50, pp. 399-420.

The Effectiveness of Manufacturing Enterprises in Terms of Value Creation Mechanism

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Keywords: Value creation, value driver, value-based management, effectiveness

1. Introduction

The characteristics of a company (and also its objectives) include innovativeness, effectiveness, development and value. They are affected by a company's environment and internal processes, as well as a deliberate action – management [8].

Effectiveness is a company's characteristic which determines its functioning and development [9]. As a company's goal, it is subjected to constant verification [4].

The effects of a company's development can take various forms, manifesting themselves in meeting stakeholders' expectations: the major ones include owners' interests and their financial objective – an increase in the value of engaged capital [1], [5]. Value created for owners translates to value for other stakeholders [10]. Value created at a microeconomic level is transformed into a macroeconomic dimension – creating value added (the main component of GDP).

The measurement of a company's expansion and its increased value is based on a number of measures [2], [11], [12]. A significant function is performed by cause and effect analysis, which examines both the impact of factors on particular value measures and relationships between these measures [3], [7]. The quantification of this impact (using induction methods) can be based on deterministic methods, which leads to creating a system of structural relations between value measures. It provides insights into the mechanism of value creation.

The results of research presented in the chapter constitute a synthetic picture of an extensive series of publications in the area in question. The three-part hypothesis put forward in the work is as follows: the development of manufacturing enterprises, assessed by value creation, can be divided into particular phases; a key determinant of the process is a factor related to value creation for owners; the degree of the transfer of benefits to an economic system increases.

2. Subject, Object and Methodology of Research

The subject of the research study is a mechanism of creating value determined by value creation processes attributable to company owners, and creating value added transferred to an economic system.

The object of the study comprises 13,006 manufacturing enterprises in Poland in 2007-2018 (41.0% of value-added creation in the enterprise sector, more than 9 employees, 2nd half of 2018).

The mechanism of value creation is quantified with the use of partial measures and value drivers interconnected within structural systems and merged into MVM (multifaceted value measure) with the use of statistical procedures [6]. The processes that affect that value are defined as follows[1]:

- creating value for a company's owners: return on assets (ROA) and financing structure-equity multiplier (EM), which determine return on equity (ROE),
- creating value added as a component of GDP: return on sales (ROS), and value-added retention ratio (VAH), which determine rate of value added (VAR).

3. Determinants of Return on Equity

In a wide range of results and conclusions regarding ROE determinants in manufacturing enterprises in 2007-2018, special attention should be given to the following findings (Fig. 1):

- higher density[2] of objects within a group of ROA-EM factors (by 30.4%), relatively uniform, towards the origin of the system they become similar,
- the trend of changes in ROA-EM values is contrary – increases in one are accompanied by decreases in the other (and vice versa), and the year 2015 marks the end of the longer and the beginning of the shorter phase of these contrary trends,
- the path of the central point of the set is characterized by numerous reversals, and average financing conditions are marked by an equilibrium between equity and foreign capital (EM=1.99), accompanied by the improved effectiveness of the employment of total capital (ROA=6.44%).

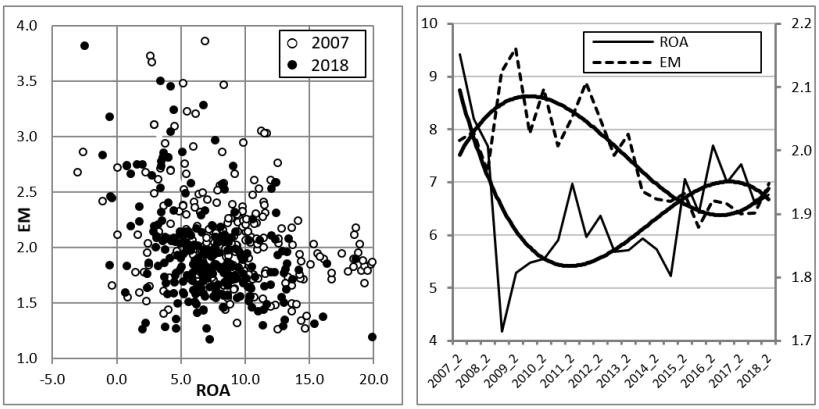

Fig. 1. Location density (left panel, the main part of the set) and trends of changes (right panel) of ROE determinants in manufacturing enterprises in 2007-2018 (six-month periodization)

4. Value Added Rate Drivers

The key findings with regard to VAR determinants in manufacturing enterprises in 2007-2018 are as follows (Fig. 2):

- higher density of objects within a group of ROS-VAH factors (from 10.1 to 0.6), relatively uniform (they become similar) towards the origin of the system but closer to the VAH axis,
- trend of changes of ROS-VAR values is consistent – an increase in one is accompanied by an increase in the other (*Pearson=0.89*). The 2008-2010 crisis is distinctly reflected in the presented values, and the next period of deterioration starts after the year 2016,
- the path of the central point of the set is marked by numerous reversals, but its regression curve is relatively stabilized (linear $R^2=0.76$), while the average conditions of operating effectiveness reach the levels of *ROS=5.38%*, and *VAH=0.22*.

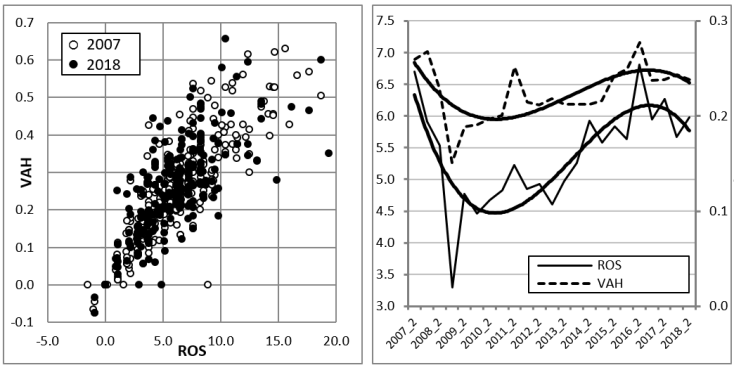

Fig. 2. Location density (left panel, the main part of the set) and trends of changes (right panel) of VAR determinants in manufacturing enterprises in 2007-2018 (six-month periodization)

5. Determinants of Multifaceted Value Measure

An assessment of MVM changes with regard to ROE-VAR factors for manufacturing enterprises in 2007-2018 results in the following findings (Fig. 3):

- higher density of objects (by 33.3%), relatively uniform, towards the origin of the system and closer to the VAR axis – they become similar, which points to stiffer competition,
- until 2017 – the trend of changes in the values of factors is consistent – increases in one correspond to increases in the other (*Pearson=0.73*). Two distinct periods of declining ROE, and one long period of declining VAR,
- the path of the central point of the set is characterized by numerous reversals, and its regression curve with a good match of $R^2=0.60$ is described on the basis of a 4^{th} – order polynomial, while average values are at the level of *ROE=12.81%*, and *VAR=20.3%*,
- the set of objects (enterprises merged into uniform groups according to PKD classifications (Polish Classification of Activities – microstructure) is divided into subclasses (quadrants), distinguished by their average ranking position and standard deviation, with the majority of positions below average changeability. High average standard deviation indicates a considerable relocation of objects.

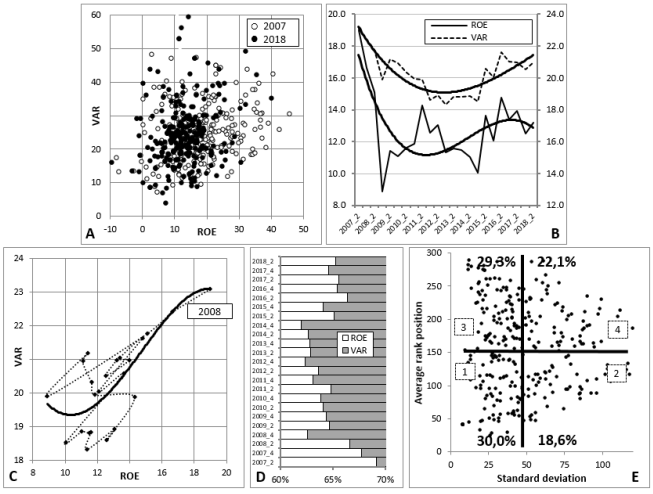

Fig. 3. Location density (A, the main part of the set), trends of changes (B), path of the central point (C) and share of determinants (D) in an MVM approach, and classification of manufacturing enterprises (E, grouping into PKD classes) according to ranking position and its changeability with regard to MVM in 2007-2018 (6-month periodization)

6. Conclusions

Microeconomic studies of sets of enterprises are rare, or even unique. The limitations of such research include access, scope and the complexity of figures. The results presented in the chapter focus on the mechanism of creating value – related to company owners, and transferred to an economic system. They allow for formulating the following proven rules:

- the main determinant in the mechanism of creating value in a micro- and macroeconomic approach (MVM) is ROE (average – 64.8%)[3]. Its share falls considerably in 2007-2014, rises for a short period of time until 2016, and then falls again. Changes of VAR are contrary,
- VAR, from a cause-related perspective, indicates that the share of ROS and VAH variables is balanced (an average of 50% each), and the analysed period is marked by three points of changes of contrary trends (increase/decrease, decrease/increase),
- with regard to ROE, the main determinant is variable ROA (an average of 72.7%). Its share rises steadily as of 2009, with decreased dynamics of changes in 2012-2013.

The achievement of the partial objectives allows for a positive verification of the main three-part hypothesis: (1) the development of manufacturing enterprises, assessed by the effectiveness measure of value creation (MVM), comprises three phases of changes; (2) in a long-term perspective, benefits resulting from the achieved expansion are transferred – on an increasing scale – to an economic system; (3) however, creating value for owners remains to be the main determinant.

Further research aims to analyses changes in trading and service companies, and to compare the mechanisms of value creation in the three types of core activities.

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REFERENCES

[1] Copeland, T., Koller, T., & Murrin, J. (2000). *Valuation-Measuring and Managing the Values of Companies*. New York: John Wiley Sons, pp. 20-27.
[2] Cwynar, A., & Cwynar, W. (2002). *Zarządzanie wartością spółki kapitałowej. Koncepcje, systemy, narzędzia*. Warszawa: FRRwP, pp. 77-274.
[3] Dudycz, T. (2005). *Zarządzanie wartością przedsiębiorstwa*. Warszawa: PWE, pp. 35-36.
[4] Fijorek, K., Kaczmarek, J., Kolegowicz, K., & Krzemiński, P. (2015). Ocena zagrożenia przedsiębiorstw upadłością – koncepcja systemowa ISR. *Przegląd Organizacji, 4*, pp. 18-25.
[5] Gołębiowski, G., Szczepankowski, P. (2007). *Analiza wartości przedsiębiorstwa*. Warszawa: Difin, p. 7.
[6] Kaczmarek, J. (2012). *Mezostruktura gospodarki Polski w okresie transformacji. Uwarunkowania, procesy, efektywność*. Warszawa: Difin, pp. 59-137.
[7] Kaczmarek, J. (2014). Measurement of Creating Corporate Value for Shareholders – Development of Measurements and Improvement of Management Competence and Skills. *Polish Journal of Management Studies, 9*, pp. 72-73.
[8] Olsen, E. (2003). Rethinking Value–Based Management. *Handbook of Business Strategy*, *4*, pp. 286-301.
[9] Osbert-Pociecha, G. (2007). Relacja między efektywnością a elastycznością organizacji, w: Efektywność – rozważania nad istotą i pomiarem. *Prace Naukowe Akademii Ekonomicznej we Wrocławiu*, *1183*, pp. 337-349.
[10] Rappaport, A. (2000). *Wartość dla akcjonariuszy. Poradnik menedżera i inwestora*. Warszawa: WIG-Press, pp. 60-66.

[11] Szczepankowski, P. (2007). *Wycena i zarządzanie wartością przedsiębiorstwa*. Warszawa: Wydawnictwo Naukowe PWN, p. 131.
[12] Zarzecki, D., (ed.) (2000). *Metody wyceny przedsiębiorstw: zarys teorii a praktyka.* Szczecin: Uniwersytet Szczeciński, p. 11.

NOTES

[1] Value added – net profit, compensation (wages and salaries) and social insurance, interest, income tax and quasi–fiscal charges. EM – total capital to equity. VAR – value added to revenue from sale. VAH – net profit to value added.

[2] Density measure $ZG = \sqrt{s_x^2 s_y^2 \cdot \left(1 - r_{xy}^2\right)}$, where: s^2_x, s^2_y – variance of variable *x*, variance of variable *y*, r^2_{xy} – the Pearson linear correlation coefficient between *x* and *y* (surface area of the ellipse covering the set of objects).

[3] Because analysis is based on a deterministic approach and logarithm method – transforming the sequence of the product of dynamics of explanatory variables into the sequence of the sum which describes their impact on the dependent variable.

The Methods of Measuring Social Capital in Enterprise

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Keywords: Social capital, measurement of social capital, value of social capital, method of social capital measurement

1. Introduction

Although the very concept of social capital is largely imprecise, this capital has become in recent years one of the most important topic in both social and economic sciences as well as in the economic practice of many countries in the world [1]. It is considered as a factor that significantly promotes social and economic development. Its quality is used to explain economic and social successes and failures, innovation and competitiveness. The strength of social capital lies in the fact that it is based on trust, which facilitates negotiations, reduces costs, promotes the flow of knowledge, increases the involvement and entrepreneurship of people. A strong, positive relationship between social capital and social welfare is well documented empirically [2], [3], [4], [5]. It is assumed that the idea of social capital has become the key to explaining and solving organizational problems regarding relations with employees, clients, other organizations [6]. The conducted research shows the existence of a deficit of social capital, both on the macro scale (society) and on the micro scale (economic organizations). In Poland, social capital in the micro scale (in organizations) is studied very rarely [7]. The authors' research carried out in 2018 in several Polish enterprises was aimed at empirical verification of two methods of measuring this capital according to the previously developed methodology of measuring social capital in an enterprise: a non-financial and financial.

2. Measuring Social Capital by Means of Non-Financial Method

In order to measure the level of social capital in a non-financial manner (the high, medium, low level of social capital) a multi-dimensional psychometric tool was developed in the form of a questionnaire consisting of 40 questions. When creating the scale, the grades addition method developed by R. Likert was used. The task of employees from the surveyed enterprises has been to assess each of 40 statements according to a five-point scale expressing different degrees of acceptance and evaluation of a given statement, where: 5 meant "I agree completely", 4 "I agree partially", 3 "I have no opinion" 2 – "I do not fully agree", 1 – "I totally disagree".

For the proper construction of the survey scale before the tests, several previous activities were carried out:

- large numbers of statements defining various elements of social capital have been developed;
- the developed statements were given for the assessment of competent human resources specialists-participants of post-graduate studies and managers. They assessed each statement in terms of its relevance and diagnostic value;

- a group of 60 employees were surveyed by means of a version containing 50 statements, however, that group was from a company other than those participating in the research;
- psychomotor properties of the scale were checked by examining another group of 120 employees from two other manufacturing companies. An analysis of the reliability of the tool was also carried out, assuming the value of Alpha-Crombach factor 0.7 as critical. The ratio analysis showed high reliability of the developed scales (0.98);
- the reliability of the scale was also determined using the test-retest method, by means of a double test. The correlation factor of both studies was 0.71 (which means a large convergence of results).

After the procedures related to the formation of the scale, proper research was undertaken.

The scope of work in several of the surveyed entities included: 1) determination of the level of social capital of employees, including employees at the managerial level, employees at the administrative level, employees in production positions, 2) identification of strengths and weaknesses of social capital, 3) developing recommendations for necessary actions, aimed at strengthening social capital.

Based on the research of J. Nahapiet and S. Ghoshal, it was assumed that the social capital of the company can be characterized by three dimensions [8]:

1. The structural dimension (structural capital). This dimension describes social capital from the point of view of the company's organizational perspective; type of organizational structure that favours the cooperation of employees within and between the entities, the type of communication system – employees' access to information, required knowledge, managers' attitude towards actions which facilitated cooperation;
2. Relational dimension (relational capital). This dimension describes the quality of contacts between employees and the type of contacts, trust, credibility, employees' willingness to share knowledge and experience;
3. The cognitive dimension (cognitive capital). This dimension describes the consistency between the norms and values of the employees and the company, the common understanding of the company's problems, the use of understandable vocabulary, etc.

The above-mentioned dimensions of social capital have been assigned specific attributes and indicators. They were:

1. For structural capital: the structure of the enterprise (the way of organizing cooperation, communication in the company, assessment of cooperation with superiors); the state of relations in the enterprise (knowledge of the competences of others, type of contacts in the organizational unit, type of contacts with employees outside the organizational unit), status of the employee (appreciation of the employee, impact on the environment);
2. For the relational capital: trust (to co-workers, to other employees and to managers); reciprocation (willingness to share knowledge, expectation of reciprocity in relationships, willingness to help others) and motivation to cooperate (positive energy to work, work with passion and energy, evaluation of the atmosphere of cooperation);
3. For cognitive capital: values and norms (consistency of norms and principles of an employee and of an enterprise, norms and values assessment, clearly defined forms of accepted behaviours in an organization); proactivity (voluntary activity for the company) and a common language (clear communication, common terminology).

Tables 1 and 2 present the cumulative research results from three selected production companies in Poland: the company marked No. 1 is a producer of meat and vegetable products (listed company), the company marked No. 2 is a cosmetics manufacturer, the company marked as No. 3 is a producer of building materials. In total, 268 employees took

part in the research, including: in the group of managers – 40 people, administrative employees – 67 people, production employees – 165 people.

Table 1. The general level of social capital in selected enterprises in %

Employees for groups	**Level of social capital**							
	high (very high, high)				**low (very low, low)**			
	average	1	2	3	average	1	2	3
Total No of employees	59.8	44.3	68.7	66.4	40.2	55.7	31.3	33.6
Managers	66.8	49.3	75	76	33.2	50.7	25	24
Production employees	58.6	40.6	66.6	68.7	41.4	59.4	33.4	31.3
Administrative employees	66.4	48.6	72.1	78.4	33.6	51.4	27.9	21.6

Source: own study

In every surveyed enterprise there was a large group of employees with high social capital (committed, cooperative, trustworthy). It is the group of employees that the company can count on – constituting the actual capital – that group includes employees in various positions.

Employees in administrative and managerial positions had the highest social capital. The largest deficit of social capital in each examined case occurred among employees in production positions, but even so employees with very high and high capital were the majority of this professional group.

Table. 2. Levels of different types of social capital in the surveyed enterprises in %

Employees for groups	**Level of social capital**							
	high (very high, high)				**low (very low, low)**			
	average	1	2	3	average	1	2	3
Total nr of employees	**59.8**	**44.3**	**68.7**	**66.4**	**40.2**	**55.7**	**31.3**	**33.6**
Relational capital	**64.5**	48	73.1	72.3	**35.5**	52	26.9	27.7
Cognitive capital	**58.6**	43.3	67.1	65.4	**41.4**	56.7	32.9	34.6
Structural capital	**56.3**	41.7	65.7	61.6	**43.8**	58.3	34.3	38.8

Source: own study

The analysis of the respective dimensions of social capital in the surveyed enterprises showed a low level of structural capital in all the studied groups (the method of organization of cooperation, access to information, knowledge sharing, management assessment according to the criterion of organizing cooperation between employees of various departments).

The highest relational capital occurred in the group of administrative employees, while the lowest in the group of production employees (including a high ratio of very low capital).

The largest deficit of social capital occurred in the following cases:

- knowledge about the competences of other employees (mainly in the group of production employees),
- the method of providing employees with company values and standards,
- the level of voluntary employee activity for the enterprise (volunteering),
- perception of the organization of cooperation between employees,
- low level of trust to both colleagues and managers in the group of administrative and production employees. However, very high trust in business owners.

The fact that there is higher assessment of employees' contacts outside the department than in their own department is worth noticing and difficult to interpret.

3. Measuring Capital by Means of Financial Method

For the purpose of measuring the value of social capital, a solution was proposed involving the valuation of the entire company and separately its individual capitals, and subsequently calculating the value of social capital as the difference between the total value of the company and the value of other capital not constituting social capital (physical, financial, structural, market, human). The basis was, therefore, the assumption that the company consists of the six listed capitals. This is justified taking into account the analogies and links between social capital and other company capitals [9], [10], [11]. Also, known methods of balance and market valuation were used. In practice, known methods required significant modifications for the purposes of measuring social capital, in particular:

- there was no problem in estimating the value of companies listed on the stock exchange, whereas as far as the unlisted companies are concerned – the method of discounting projected cash flows with a 5-year forecast of cash flows was applied. No major investments were carried out in any of the surveyed entities, hence investments in subsequent years were assumed at the reconstruction level. Changes in the value of working capital (stocks, receivables, liabilities) resulted proportionally from changes in revenues and costs. The standard weighted average cost of capital was used for discounting, weighted by the share of debt and shareholders' equity in the capital structure of the company, including the so-called "Tax shield",
- in the case of valuation of physical capital for the purposes of measuring social capital, the basis could not be "marketability" (because the purpose of the valuation is not to sell the asset) but "suitability" for the company to generate revenues. If land value was determined, costly and labour-intensive estimation of value by property appraisers was abandoned. The information on average prices of land published by the Central Statistical Office was used,
- in the valuation of financial capital, only some items were adjusted in terms of their real value, e.g., in the case of overdue receivables,
- in case of calculation of the value of human capital, a simple cost method was applied, in which the value of human capital was estimated as the arithmetic product of the number of employees and the value of remuneration in the period of gaining professional experience necessary to perform work at individual positions,
- the market and structural capital were also estimated using a simple method, based on the amount of historical expenditure incurred on promotion and advertising, the acquisition of patents, licenses, and research and development work. The sum of these expenditures was the value of market or structural capital. A valuation was carried out in the surveyed enterprises, in which after the preliminary assessment it was stated that they have a brand that could have a significant impact on the value of capital.

Presentation of the results of the value of capital in individual enterprises is not advisable due to the lack of comparability of these results between enterprises. The results serve primarily to assess the effects of actions taken to increase the value of this capital. This means that the value of social capital itself is not important and only the comparison of this value with the value obtained in the next measurement is significant, e.g., after a period of one year.

It can only be noted that the percentage of physical capital in the value of the surveyed enterprises oscillated around 31-50%, human capital 18-33%, financial capital 7-13%, structural capital 2-11%, market capital 13-23%, social capital 2-12%.

4. Conclusions

Research has allowed, among others to state that:

- it is possible to simultaneously measure the level of social capital in the enterprise using two methods – non-financial and financial one, with a relatively small expenditure of forces and resources in a limited time. This is feasible due to the use of the rather simple methods of measuring this capital, the methods which were described above;
- it is advisable to conduct social capital measurements simultaneously by means of two methods. The non-financial method allows to assess its level in both professional groups and individual company cells, which in turn allows to make recommendations for improving its level. Using the same tool also allows to compare the level of capital in an enterprise and its parts to the level of capital in other companies. The second method – measurement in financial values has a complementary character in relation to the non-financial method. It is not possible or useful to compare the value of this capital with other enterprises, but first of all – re-measuring the value using the same methodology after a period of time after taking action to increase the level of social capital, allows to assess the effect of these activities. In addition, the mere fact that social capital has a financial value just like, for example, physical capital, draws the attention of managers to the fact that its level may contribute to the improvement of revenues from sales or cost savings;
- the measurement of social capital using the financial method beside the non-financial one, takes into account the simultaneous valuation of the remaining 5 capitals included in the company, i.e., physical, financial, structural, market and human. Obtaining knowledge about the value (financial method) and level (non-financial method) of all company capitals will allow to manage the company more effectively. The efficiency of capital management (which is possible due to the knowledge of their value) may be an alternative to assessing the condition of the company and the work of the board instead of using the traditional measuring tool which is the profit.

REFERENCES

[1] Jędrych, E., Berniak-Woźny J. (2018). Kształtowanie kapitału społecznego organizacji. PWN, s. 7.

[2] Leana, C., Van Burren, H. (1999). Organizational Social Capital and Employment Practices. Academy of Management Review no. 24 (3), pp. 538-555.

[3] Andrews, R. (2010). Organizational Social Capital, Structure and Performance. Human Relations no. 63 (5), pp. 583-608.

[4] Krebs, V. (2008). Social Capital: The Key to Success for the 21st Century Organization. IHRM Journal no. 12 (5), pp. 38-42.

[5] Sztaudynger, J. Ambroziak, E. Starosta, P. (2016). Zaufanie, skłonność do pomocy i uczciwość a wzrost gospodarczy w Europie. Ekonomista nr 5, pp. 647-673.

[6] Bratnicki, M., Dyduch, W. (2003). W poszukiwaniu wyceny kapitału społecznego. Organizacja I Kierowanie nr 1, pp. 3-15.

[7] Pawłowska E. (2012). Kapitał społeczny – diagnoza i pomiar. Zeszyty Naukowe Organizacja i Zarządzanie Politechnika Śląska nr 63a, pp. 87-100.

[8] Nahapiet, J., Ghoshal, S. (1998). Social Capital. Intellectual Capital and the Organizational Advantage. Academy of Management Review 23 (2), pp. 99-120

[9] Kostro, K. (2005). Kapitał społeczny w teorii ekonomicznej. Gospodarka Narodowa nr 7-8, pp. 14-16.

[10] Wosiek, M. (2017). Kapitał społeczny i jego relacje z czynnikami wytwórczymi, Nierówności społeczne a wzrost gospodarczy nr 52, pp. 80-93.

[11] Einstein, A. (1916). General Theory of Relativity. Annalen der Physik 49(7), p. 769.
[12] Bratnicki M., Strużyna J. (2001). Przedsiębiorczość i kapitał intelektualny. Wydawnictwo Akademii Ekonomicznej, Katowice s. 7.

Theory and Practice of Valuation of Company's Intellectual Capital

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Keywords: Value of capital for shareholders, enterprise reporting, intellectual capital, intangible assets

1. Introduction

Considerations presented herein focus on problems related to the interpretation of the category of intellectual capital in the process of enterprise valuation. The meaning of intellectual capital as an equivalent of off-balance intangible assets is generally emphasized in the literature and is supported by the consensus of competent economy practitioners. It is commonly believed that intangible assets generating the difference between market value and record value jointly correspond to the intellectual capital of an enterprise. This observation is illustrated by a comparison of intellectual capital to roots of a tree which may not be visible and yet are of key importance for its growth [1, p. 59].

Basics of accounting theory highlighted the weight of intangible assets and from the very beginning it was obvious that there were restrictions regarding their presentation in the balance sheet [2]. However, only knowledge-based economy is connected with quality-intense use of intangible assets in order to achieve competitive edge. It is confirmed by standards generated by the International Accounting Standards Committee (IASC) whose interpretation points to the priority role of balance sheet in financial reporting. At the same time discrepancy is growing between balance-sheet presentations of enterprises and investor behaviour perceived through the perspective of capital market quotations [3]. According to this interpretation, market is a specific generator of aggregated knowledge on the value of intangible assets reported in an imperfect way by the financial accounting system. The intensity of this phenomenon obviously varies and depends among others on the sector, market, method of disclosing information, size of an enterprise and other factors. However, if market valuation is to be perceived as a parameter correlated with the cost of capital, an important and multi-dimensional management problem emerges. The following four dimensions of the discussed issue have been defined as significant from the point of view of the theory of management and the reporting practice followed by enterprises, incl.: scope of intangible assets presentation, lack of consensus regarding methodology and responsibility for the valuation of intangible assets, ownership and nature of intellectual capital and model of reporting the value of intellectual capital.

Further, the chapter presents a detailed interpretation of the defined dimensions. The chapter also presents results of fragmentary empirical studies on the imperfection of information in the capital market in Poland, thus supplementing the identified challenges for further studies on the essence of intellectual capital and the way it is reflected in corporate reports issued for stakeholders.

2. Selected Interpretative Barriers to Reporting Intellectual Capital for Stakeholders

Special challenges to managing intellectual capital and reporting its value may be said to include formal limitations regarding its presentation. There are opinions that the value of intangible assets largely influences the value of a modern enterprise [4, p. 115]. Despite this, only some of them are recognized and disclosed in the balance sheet. Reasons thereof include first of all prerequisites of balance sheet capacity whose fulfilment entitles organizations to balance sheet disclosures. As intangible assets are non-monetary assets without physical substance, they are disclosed in balance sheet records of enterprises under the item intangible assets and long-term investments. This formal situation arises from the Polish act on accounting. However, it needs to be indicated that IRS/IFRS (see: IRS 38) offer analogous solutions in key issues. US GAAP does not include a uniform standard with respect to intangible assets.

For a disclosure to be effective, a given asset must remain under the control of an entity as an identifiable asset (so that it is possible to separate or spin it off from a business unit and sell, transfer, license, hand over to other entities for non-gratuitous use). Intangible assets must also be used in the course of the conducted business activity and should in future bring economic benefits as expected by the entity. Reporting unit is able to reliably determine the purchase price or the production cost.

Imperfections of balance sheet reporting support the conclusion that there is a significant shortage of resources of which the stakeholders are not informed by way of formalized conventional financial reports (or are informed in a way that differs from their expectations).

It can also be said that entities are not comparable. IFRS 3 distinguishes five types of intangible assets which may be spun-off irrespective of goodwill. These are marketing-related intangible assets arising from the relation between an enterprise and a customer and artistic-related, legal and technological assets. According to US GAAP, technology-related, contract-related, artistic-related, customer-related and marketing-related intangible values may be disclosed regardless of goodwill. If it is commonly accepted that it is the intangible assets that more and more influence the process of delivering value by an enterprise, it is not surprising that information flows which do not include this aspect become at least to some extent less reliable for investors and other entities interacting with an organization [5, p. 353]. Obviously, actions taken by enterprises must take into account the heterogeneity of stakeholder expectations and criteria for prioritizing them [6, p. 300].

Not only the scope of disclosure of intangible assets may be an interpretative barrier to decisions made by the entity which issues information [7], it may also be the valuation.

Numerous methods used for more or less precise measurement, analysis of intellectual capital or selected segments thereof may be found in the literature. Virtually none of them has ultimately solved the problem of disclosing intellectual capital covering the value of all intangible assets [8, 9]. At the same time, the risk related to the valuation of intellectual capital is immanent. A characteristic feature of assets financed thereby is the difficulty of their identification, and additionally, the lack of disambiguated procedures in the valuation process.

The measurement of capital value and information about the result depends significantly on the adopted interpretation assumptions and is far from unambiguous and objective. The market of intangible assets is not developed to the same extent as the market of tangible assets or financial instruments. Insufficient database of contracts concluded in this scope and sometimes a vague context in which they are concluded pose specific challenges for entities in the landscape of an enterprise in the context of decisions made and rationalized based on enterprise reports. On the other hand, the system of managing the enterprise itself, in whose interest it is to “convince” the environment about the real value of the intellectual capital, is facing a challenge. And this is where another interpretative barrier is expected.

It is worth to note the particular specifics of estimating intellectual capital. Since some intangible assets remain outside the balance-sheet record, the valuation is not done by the entity which discloses an asset but the entity to whom it is disclosed and it also bears liability and (financial) consequences of an incorrect valuation [10]. It happens if risk factors [11, p. 33], meaning unequal split of responsibility for the interpretation of emerging threats, are not sufficiently reported in reports prepared by enterprises. The problem is made worse by the unavoidable asymmetry of information between the management of an enterprise issuing information and its recipients.

Most often the increase of the intellectual capital value is connected with the increase of owners' wealth. However, the authors of a concept of the market value of an enterprise capital (from an insurance company SCANDIA AFS), which is recognized as highly reliable, indicated that it has the nature of a liability towards stakeholders of an organization. The liability nature of intellectual capital against its dominant role in the process of building a strategic position of an enterprise puts several management problems in a different light.

These include the equivalence of the repayment of liabilities under contracts concluded with stakeholders, interpretation of CSR policy followed by business organizations or the meaning of knowledge management methods.

How should one interpret the fact that the increase of the intellectual capital improves rather than deteriorates the position of an entity on the financial credits market? And how to interpret ownership relations in the case of intellectual capital and intangible off-balance sheet assets? The questions asked, or rather the potential answers are important in a number of areas of practical application, for example the valuation of enterprises as a subject of trade or fundamental analysis facilitating the evaluation of growth prospects of a business organization. It should be noted however that the liability nature of intellectual capital is not actually obvious in the literature.

The last of the discussed interpretative barriers is found in the dynamics of the reporting models used by an enterprise. The evolution of those models may be very simply presented in the following sequence:

- reports based on the historic value of assets – the scope in which intellectual capital is reflected is relatively low. The value of enterprise capital is determined by tangible and financial assets. The advantage is valuation verifiable in real transactions. It is reliable if market volatility is low.
- reports using financial forecasts – the scope of reporting on intellectual capital increases, however, it is recognized under the categories of the ability to generate cash flows arising from the fact of having and using it. The practical split of financial and managerial accounting [12] still remains somewhat of a barrier to the growth of this form of reporting as is the possibility of verifying the reliability of calculation models used.
- quality reporting – interpretative and valuation possibilities regarding sources of the intellectual capital increase. At the same time the evaluation of financial consequences of using intangible assets is left to the recipients of the information. The need to report some aspects of the impact on environment (including CSR) is also a factor that motivates management boards to take certain steps.
- business concept reporting – due to changes in the structure of enterprises and markets and the related increased range of entrepreneurship behaviour, it becomes necessary to explain the way enterprises function in a way going beyond reporting financial data. It makes it possible to "understand business" or at it least that is its purpose [13]. The key element of reporting intellectual capital is a unique concept, a specific method of obtaining profitability higher than the competition, a business concept and a way to stand out in the strategic dimension. Support in understanding business is only one of

the aspects of the discussed form of reporting. Generalized uncertainty and asymmetry of information make it possible to talk about the second face. There are practical examples where reporting on a business model is aimed at "deluding the addressee", unfold before them a ground-breaking vision which makes current financial results seem less significant [14, 15].

The review of some of the trends leads to the conclusion that content and the form of financial reporting are growing. However, one cannot disregard the increased share of quality data that is more difficult to verify, and in fact refers to potential possibilities generating income from assets.

3. Results of Fragmentary Empirical Research Verifying Significance of Value of Intellectual Capital in Decisions Made by Investors

Market value of an enterprise is the value of its equity which may be obtained on the market at a given point of time. Accurate estimation of the market value of capital is possible when a given company is quoted on the stock exchange, and thus the value in question equals the capitalization of a listed company understood as a product of all shares issued by the company, and their current market price. In other words, it is a price that a competitive market would be most likely to pay for a given company at a given point of time. Competitiveness is by default assumed both on the supply and the demand side. The adopted valuation of capital value has considerable interpretative limitations. First of all, one should indicate the consequences of market imperfection which are responsible for periodic dynamics of quotations loosely correlated with the operational realities of the valued enterprise. Another interpretative limitation stems from the fact that capital instruments of only some enterprises are subject to transactions on an active market. The price of capital instruments also depends on whether they are a majority or a minority ownership, as well as other factors. Any evaluation will be incomplete if the impact of the broadly understood market, its structure and imperfection is not taken into account [15]. These factors existing in the environment of an enterprise are an objective component of reality and as such are not subject to financial reporting in any of the *corporate governance* systems.

A certain starting point for the discussion may be the results of the calculation of dependency ratios between the value of intellectual capital and investor decisions, identified on the Warsaw Stock Exchange. The calculations were made as on 07.11.2018 based on data available at https://www.bankier.pl/inwestowanie/profile. Four indexes were selected, i.e.: WIG BANKS, WIG IT, WIG CONSTRUTION, WIG FOOD INDUSTRY.

The first two sets of entities in this list should be characterized, at least in principle, by a high dependency on intangible components which results from the fact that the business is either based on customer trust or on innovative technical and technological solutions. Since the number of samples was limited, rank correlation coefficient r was used (an option not including associated ranks). Value of intellectual capital was identified based on the price to book ratio. Investor decisions were perceived through the perspective of a single-year change of quotations of companies assigned to a given index. Leaving the calculation details aside, results for selected indexes were as follows:

$r_{\text{WIG BANKS}} - 0.84$
$r_{\text{WIG IT}} - 0.19$
$r_{\text{WIG CONSTRUTION}} - 0.50$
$r_{\text{WIG FOOD INDUSTRY}} - 0.29$

The conclusion is obviously subject to limitations resulting from the fragmentariness of the study, imperfection of the tool used or the authoritarian method of selecting the sample.

However, the weakness of correlation relations is an important reason for an academic reflection on the essence of intellectual capital as a basis for investor decisions or a manner in which the environment is informed about the utilization of this capital.

4. Conclusions

The strategy of managing value integrates financial decisions which shape the efficiency of operations and investments of an enterprise. It thus combines the analysis of results obtained in consecutive reporting periods with results expected in future. A number of concerns and questions arise in this context, including whether in view of the fact that the difference between the market value and the asset value takes into account a structural component of the market, which is additionally volatile and unstable in time, it is necessary to assume that the value of off-balance assets and the financing capital is unequal which would mean that not the entire value of the capital should be understood by stakeholders as an indicator of the enterprise's situation? And how to divide those items?

It provides a forum for discussion whether changes in enterprise reporting go too far or, on the contrary, are too shallow to comprehensively cover the importance of the intellectual capital value? It can also be debated whether risk factors and value creation are sufficiently reflected in enterprise reports.

Reporting systems used by enterprises require further improvement. It is hard to define the direction of those changes from the current perspective since there is a number of requirements in this scope. The conclusion that the requirement for a quality change in this scope is growing seems to be justified. It opens a space for academic debate and empirical research aimed at developing assumptions for strengthening the accountability attribute of reporting systems.

REFERENCES

[1] Edvinsson, L, Malone, M. S. (2001). Intellectual capital. Wydawnictwo PWN, Warszawa.
[2] Sprague, Ch. E. (1922). Philosophy of Accounting. The Ronald Press Company, New York.
[3] Vafaei, A., Taylor, D., Ahmed, K. (2011). "The value relevance of intellectual capital disclosures. Journal of Intellectual Capital", Vol. 12, No. 3, pp. 407-429.
[4] Kaplan, R. S., Norton, D. P. (2011) Alignment. Gdańskie Wydawnictwo Psychologiczne, Gdańsk.
[5] Sriram, R. S. (20080. "Relevance of Intangible Assets to Evaluate Financial Health. Journal of Intellectual Capital", Vol. 9, Iss. 3.
[6] Illia, L., Lurati, F. (206). Stakeholder perspectives on organizational identity: searching for a relationship approach. "Corporate Reputation Review" 2006, 8 (4).
[7] Jung, S. H. (2015). Are Analysts Cash Flow Forecasts Useful? "Accounting and Finance" No 55/2015, pp. 825-859.
[8] Sobańska, I. (2007). Nowa orientacja system rachunkowości w praktyce polskiej w kontekście wdrażania MSR/MSSF [In:] Cebrowska, T., Kowalik, A., Stępień, R. (red.). Rachunkowość wczoraj I dziś. SKwP, Warszawa.
[9] Świderska, G. (2007). Wpływ zakresu ujawnianych informacji na zaufanie do rynków kapitałowych I organizacji gospodarczych. Oficyna Wydawnicza SGH, Warszawa.
[10] Bogle, J. (2012). The Clash of the Cultures: Investment vs. Speculation. John Wiley & Sons, NewJersey.
[11] The Landscape of Integrated Reporting. Reflections and Next Steps. (2010). Eccles, R. G., B. Cheng, B. Saltzman, D.(ed.), Harvard Business School.
[12] Copeland, T., Dolgoff, A., Moel, A. (2004). The role of expectation in the cross section of returns. "The Review of Accounting Studies", Vol. 9, pp. 149-188.

[13] Mason, K., Spring, M. (2011). The sites and practices of business models. “Industrial Marketing Management” 58 (3), pp. 1032-1041.
[14] George, G., Bock, A. J. (2011). The Business Model in Practice and its Implications for Entrepreneurship Research. “Entrepreneurship Theory and Practice”, vol. 35 No. 1/2011.
[15] Sorrentino, M., Samarra, M. (2015). The term “Business Model” in Financial Reporting: Does it need a Proper Definition. “Open Journal of Accounting, No 4/2015, pp. 11-22.
[16] Andriessen, D. (20040. Making Sense of Intellectual Capital. Design a Method for the Valuation of Intangibles. Elsevier, Amsterdam.

Planning Intellectual Capital Management: Dilemmas, Contradictions, Recommendations

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Keywords: Intellectual capital management, contradictions, planning

1. Introduction

Dynamic market transformations impact requirements towards organizations in respect of improving the management process. The necessity of tackling an increasing number of connections and highly complex problems is an inseparable element of every organization's functioning. As a result, issues related to planning intellectual capital management do not lose their relevance. A review of the literature on the subject even indicates that such capital has for many years been the answer to complex relationships in every organization's environment. Researchers (Sveiby, Edvinsson, Malone, Stewart, Sullivan, Bontis, Andriessen, Roos, Mouritsen) emphasize that standardizing its definition, improving its management and deciding on a valuation method are still important research tasks. Attempts to diagnose, for instance, the evolution in managing its components, such as human capital, are therefore being undertaken [1]. A view common among researchers is that despite a broad and multifaceted research area, standard solutions still have not been developed for many aspects of intellectual capital management. Planning intellectual capital management is one of the most important processes that take place within an organization.

2. Planning Intellectual Capital Management

Many attempts to decompose and define the concept of intellectual capital may be encountered in the literature. Due to editorial limitations on the chapter they are not cited here.

According to Armstrong a "strategic and coherent approach to the management of an organization's most valued assets – the people working there who individually and collectively contribute to the achievement of its objectives" is one of the most important processes that occur in an organization [2]. This standpoint refers to planning of human resources, but they are treated as the key component of intellectual capital management.

Without planning, management activity is a question of pure chance. It allows to determine how specific resources should be organized to achieve a goal.

In the classic approach, management is described in the literature on the subject as a set of actions in the areas of planning, organization, motivation and control. This logical sequence of functions, aimed at utilizing an organization's resources, should translate into an improvement of the decision-making process. Many reservations have been expressed in the literature about such a simplification (e.g., Cyer) [3]. As Kostera [4] indicates, it is nevertheless still commonly used in studies, particularly those that aim to show the essence of management decisions with the greatest possible clarity. In the context of such a take on management, notably those decision-making issues that concern intellectual capital management come to the fore.

Planning is treated as a foundation on which an organization's activity is built. In the case of an enterprise whose objective is economic efficiency [5], planning provides a realistic forecast. In the case of other organization types (e.g., non-profits) it justifies social readiness to support their existence. Organization plans are sets of various types of solutions. The typology of plans is rich and varied [6]. Plans may also be ordered in a given hierarchy of importance, although so-called downstream plans may verify and modify upstream plans. It may be said that there are systemic connections between different types of plans. Currently particular importance is attached to strategic plans that are grounds for investing in company securities or supporting non-profit organizations. A different type of plan, the "business plan", is a precondition for obtaining financing. At the same time, the palette of planning methods and techniques is diverse. The strategic analysis methods and techniques that allow to shape the future of an entire organization have been expanded on over many years [7]. On the operational level also, so-called operational studies have been developed and linked to possibilities offered by IT [8]. Additionally, through solutions such as SAP a fairly high level of coherence may be achieved in planning. Planning procedures themselves are adapted to plan types and the ways in which they are connected.

At the same time, ownership of individual persons' and teams' intellectual capital and also ownership of components of human capital, e.g., knowledge, is a particular problem [9].

Rights to patents and ownership of inventions may variously be regulated by an organization's internal rules.

In light of the above-described topics concerning planning and knowledge about the specific nature of intellectual capital, there arise the following decision-making problems related to planning as a function of business management:

- In whose name are plans carried out, or: who should intellectual capital belong to and on the basis of what law or social norm can intellectual capital development plans be made?
- Should the management board and owners recognize the value of intellectual capital as a key component of economic efficiency (in the context of Drucker's opinion cited above) or in the case of non-profits, as independent justification of the organization's existence?
- Should separate intellectual capital management plans be created (broadening the existing range of plan types)?
- What should the relation between different types of plans and intellectual capital management be (how does the issue of plan coherence and hierarchy fit in here)?
- What methods should be used for intellectual capital management planning (taking into account the diversity of planning methods)?
- Can a universal planning procedure useful for intellectual capital management be recommended?
-

3. Summary of Main Dilemmas and Recommendations

Interesting management problems and dilemmas emerge when the concept of intellectual capital management is juxtaposed with a description of general organization management issues. The indicated planning dilemmas have been presented as additional entries in Table 1, where they are juxtaposed with contradictions present in business management.

The questions asked earlier may be made more specific by taking into account the numerous antinomies in the area of business management. A preliminary sketch of the contradicting areas includes:

- protection of information and security versus transparency of adopted solutions,
- universality and mimetics versus specificity and differentiation,

- stability versus changeability,
- pressure on economic effect versus social responsibility,
- independence versus subordinate systems.

The cited list of contradictions remains open. However, even the emphasized bipolarity of the adopted solutions indicates that a non-systemic approach to intellectual capital management is needed. In the next step, as a result of investigations undertaken, recommendations were made for improving efficiency of planning in connection with intellectual capital. A summary of these recommendations with respect to solving dilemmas of intellectual capital management planning in the context of contradictions in business management is set out in Table 2.

Table 1. Dilemmas of intellectual capital management planning in the context of contradictions of business management

Contradictions in business management / Dilemmas of intellectual capital management planning	Protection of information and security – transparency	Universality, mimetics – specificity, differentiation	Stability – volatility	Pressure on economic effect – importance of non-economic factors (social responsibility)	Independence – subordinated systems
In whose name are plans carried out, or: who should intellectual capital belong to, and on the basis of what law or social norm can intellectual capital development plans be made?	The need to write well-defined plans for ownership development while ensuring discretion and protection of information about the planned changes. The need to keep up with dynamic changes in the environment while ensuring stable functioning.			Emphasis in plans on an organisation's economic, but also social responsibility, and ways of dealing with risk.	Accentuating legality of business activities while bordering on the illegal (strong influence of legal environment).
Should separate intellectual capital management plans be created (see the issue of plan types)?	It becomes necessary to establish: - at what level of planning (strategic, tactical or operational) the intellectual capital factor should be taken into account, - to what extent a planning horizon is desired, considering that an organisation cannot be changed from day to day according to the need of the moment. It is necessary to take many limitations (e.g., legal) into account.				
What should the relationship between different types of plans and intellectual capital management be?	On the one hand the need to integrate all plans within an organisation is pointed out, on the other the extent to which the category of intellectual capital can be planned in volatile conditions should be considered, as should the potential place of intellectual capital management plans in the overall structure of desired asset values.				
What methods should be used for intellectual capital management planning?	The need to consider to what extent currently-known strategic analysis techniques will enable shaping of intellectual capital resources in the future. At the same time planning in a turbulent environment is very difficult, and reaching a state of equilibrium between different spheres of operation is always delayed with respect to changes in the environment.				
Can a universal planning procedure for managing such capital be recommended?	The factors determining adoption of solutions will include organisation size, its scope of activity and finally, decision makers' level of consciousness.				

Source: Own elaboration

Table 2. Recommendations for possible solutions to dilemmas of intellectual capital management planning in the context of contradictions in business management

Contradictions in business management / Dilemmas of intellectual capital management planning	Protection of information and security – transparency	Universality, mimetics – specificity, differentiation	Stability – volatility	Pressure on economic effect – importance of non-economic factors (social responsibility)	Independence – subordinated systems

In whose name are plans carried out, or: who should intellectual capital belong to, and on the basis of what law or social norm can intellectual capital development plans be made?	Only a general outline of the structure of adopted solutions should be public. Details are strategic information and are the property of their owners.	Balancing requirements as regards comparability while meeting the need to implement original, unconventional solutions necessary due to dynamic changes in the organisation's environment.	Need for in-depth studies.	Balancing on the edge of governance system security (e.g. initiating critical internal discussion).
Should separate intellectual capital management plans be created?	Based on in-depth studies, a systemic plan should be developed.			
What should the relationship between different types of plans and intellectual capital management be?	The plan of changes in an organisation's total capital may be the set of information that stands highest in the hierarchy, and the plan concerning intellectual capital resources should be one of the functional plans.			
What methods should be used for intellectual capital management planning?	The need to consider to what extent currently-known strategic analysis techniques will enable shaping of intellectual capital resources in the future. At the same time planning in a turbulent environment is very difficult, and reaching a state of equilibrium between different spheres of operation is always delayed with respect to changes in the environment.			
Can a universal planning procedure for the area of managing intellectual capital be recommended?	The factors determining adoption of solutions will include organisation size, its scope of activity and finally decision makers' level of consciousness.			

Source: Own elaboration

4. Conclusions

Instead of simple answers, the conducted studies brought further concerns and the conclusion that solutions adopted with respect to intellectual capital management planning are to a large extent dependent on the context in which a given organization operates (organization size, the scope of its operations, decision-makers' level of consciousness).

Reconciling the contradictions identified – whose list is not exhaustive – is a unifying factor and a requirement of the complex environment of every organization. When carrying out the four basic management functions (including planning), managers operate within a given framework of contradictory considerations and are forced to search for original and innovative solutions. These also concern the questions raised above regarding planning that takes into account the concept of intellectual capital. Moreover, it should be kept in mind that solutions within one management function provide guidelines for other functions. Thus, it becomes justified to identify basic decision-making problems that concern, in order: organizing, motivation and controlling, which may be encountered while managing an organization when the idea of intellectual capital is taken into consideration. The challenge for further research is to test planning methods and work out how the concept of intellectual capital shapes the content of the remaining classic functions of management.

REFERENCES

[1] Antczak, Z. (2018). Kapitał intelektualny i kapitał ludzki w ewoluującej przestrzeni organizacyjnej. Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
[2] Armstrong, M. (2006). Zarządzanie zasobami ludzkimi. Oficyna Ekonomiczna, Kraków, p. 29.
[3] Cyert, R., March, J. G. (1963). A Behavioral Theory of the Firm. New York.
[4] Kostera, M. (2014). Occupy Management Inspiration and Ideas for Self-Organization and Self-Management. Routledge. London.

[5] Drucer, P. F. (2005). Praktyka zarządzania. MT Biznes, Warszawa.
[6] Bieniok, H., Ingram, M., Marek, J. (1999). Kompleksowa metoda diagnozowania systemu zarządzania przedsiębiorstwem. Wydawnictwo Akademii Ekonomicznej w Katowicach, Katowice, p. 25.
[7] Gierszewska, G., Romanowska, M. (2002). Analiza strategiczna przedsiębiorstwa. Polskie Wydawnictwo Ekonomiczne, Warszawa.
[8] Trzaskalik, T. (2003). Wprowadzenie do badań operacyjnych z komputerem. Polskie Wydawnictwo Ekonomiczne, Warszawa.
[9] Strużyna, J. (2008). Porównanie koncepcji zarządzania zasobami ludzkimi i zarządzania kapitałem ludzkim. Zarządzanie strategiczne. Podstawowe problemy. (red.) R. Krupski, Wałbrzyska Wyższa Szkoła Zarządzania i Przedsiębiorczości, Wałbrzych, pp. 211-221.

Relationship Management in Theory and Practice

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Keywords: Relationships, relationship management, the role of relationships

1. Introduction

Contemporary managers have to face the problem of what should be done to cope better with individual needs of customers and other co-workers faster and cheaper than competitors in changeable, and frequently unpredictable circumstances. Solutions that apply the whole dynamics, the entire knowledge and human potential existing not only in a specific enterprise but also outside, is found in the main trend of search for the relevant answer. This forces the necessity to establish several types of relationships.

On the basis of the deliberations it can be stated that establishment and development of good relationships allows, in strategic perspective, to achieve synergic effects and accelerate the time of reaction to changes occurring in the environment, among entities applying these relations.

Nowadays because of the growing speed of changes and unpredictability of the conditions of functioning, progressing competitiveness and resulting interdependence of entities involved in exchange, brought by the necessity to complete internal competences, relationships gain special significance. In these circumstances they become the basis for strategic and operational activities of the enterprise [1].

Therefore, it can be assumed that establishment of successful relationships is a necessary condition for market success, provided that the relations are efficiently managed.

In the light of the above information, the purpose of this chapter is to identify the manifestations of relationship management on the example of a group of Polish enterprises.

2. Essence of Relationship and Relationship Management

Relationships constitute the most important foundation for contemporary economy from the point of view of organizational structures [2] While building relationships and starting cooperation, the companies aim at achievement of goals they could not achieve individually.

Depending on possessed relational competencies and defined goals, the companies enter various types of relationships, and function in conditions of various risk.

Therefore, the ability to create relationships between an organization and environment is extremely valuable as:

it determines the ability to identify the needs and expectations of stakeholders and defines the context of company functioning in market, as well as financial, social, cultural, technical, technological, political, legal or ecological dimension. This should support identification of the key success determinants resulting from the establishment of relationships, it determines identification of the goals of an organization and affects their implementation (linking the process of formulation of goals with relationship management and with the parties that are interested in their implementation supports limiting the possibility of emergence of

conflicting objectives), it affects the process of an organization management (management of relationships with stakeholders) and determines the decision-making process [3].

Gathering adequate relationship resources provides the enterprises with desirable flexibility in searching for and establishment of cooperation with partners offering financial and non-financial resources. Unique relationship resources bring strengthening of advantage [4], [5], and help the enterprise to maintain this advantage [6].

M. Romanowska [7] states that a cooperative enterprise, searching for cooperation and not competition, concluding numerous agreements with suppliers and buyers as well as forming alliances with competitors to develop a complete offer without its own resources is an ideal.

Every company establishes and maintains relationships with other market players because contacts and market exchange are necessary conditions for market functioning. Nevertheless, apart from flow of money and goods, the relationships occurring between organizations may lead to creation of new knowledge and skills [8].

T. Peters defines a reat paradox of contemporary management consisting in the fact that growing competition demands growing cooperation [9]. This paradox is an explanation for the increasing role of relationships and interest in all the forms of interorganizational cooperation that are the elements of fundamental strategies of growth and development of contemporary enterprises [10]. Efficient relationships are one of the determinants of a competent and successful management of organizations on contemporary market, thus they should be managed in the way that reduces the costs and improves innovativeness, as well as competitiveness of the company. Therefore, we should answer the question of what relationship management actually is.

The ability to cooperate (relationship capability) is the basis for establishment and management of relationships. This capability initiates creation of a specific mechanism inside the organization that concerns management of internal relationships [11]. It also emphasizes the pursuit of integrated management of a broader group of relationships with external partners, implemented while taking into consideration common interests of the parties in the relationships [12]. Relationship management is an innovative approach or management model, the functioning of which is defined by the fact that the needs of the parties in the relationships are satisfied in possibly most successful way. Relationship management should be approached not only as a tool, but also as an element of a strategy and philosophy of operation of an organization, where continuous contact with participating entities and their satisfaction are the key values. Multidimensional character of the relationships, the reasons why they are created as well as their actual effects, makes relationships management a complex process. On the other hand, building relationships in an appropriate way, allows for successful management of these relationships and of the whole organization.

Relationship management can be presented as a typical management process which includes four basic functions: planning, organizing, motivating and controlling [13].

Planning represents reflection over the role of relationships in cooperation, the analysis of the potential of an organization, and the possibility to adapt a concept of relationship management in the enterprise. **Organizing** is associated with selection of entities and forms of cooperation, establishment of cooperation and designing information and decision-making systems. **Motivating** requires identification of factors which stimulate successful cooperation and development of incentive system that shall increase operational efficiency of employees' in the sphere of shaping relationships. **Controlling** – it is a typical element of the system because relationships are not a property of one party, but are jointly controlled by both parties involved in the relationships.

Expected situation of relationships as well as applicable assessment factors should be taken into consideration, scenarios of possible events ought to be analysed, and then current

situation of relationships needs to be controlled, deviations from adopted assumptions analysed and applied solutions improved.

In a different approach, relationship management is mostly limited to creation of appropriate portfolio of relationships adequate for tasks, and shaping the bonds linking the involved parties [14].

The presented considerations show that the concept of relationship management may be based on classical management functions, but it may also arise and be based on many other well-known management concepts. In practice, one should look for those factors that in various management systems will support the process of managing them and indicate activities that prove that a given company, however, shapes and manages relationships without leaving them to themselves.

Initial analyses allow for stating that few Polish enterprises declare that they manage relationships; however, they show a lot of features that prove that they value relationships, and they perceive building and maintaining them as vital (conclusion from interviews conducted by the Author with representatives of Polish enterprises before starting the major research).

The author of the chapter attempts to verify this stating in the research.

3. Research Methodology

The considerations presented before encouraged the author to design research aiming at identification of the manifestations of relationship management (while taking their operationalization into account) in Polish companies. Identification of the symptoms of relationship management is a part of a broader research, the objective of which is to determine the role of relationships in creation of company success.

On the grounds of the literature, it is stated that the notion of relationship management can be operationally represented by the following components that are operations possible to be observed in economic practice:

- identification of the nature of enterprise relationships,
- identification of stakeholders,
- diagnosis of relational capacity,
- identification of benefits from relationships,
- development of the strategy based on shaping relationships.

To study the expressions of relationship management in Polish enterprises a survey was applied. The survey was performed by interviewers between October and December 2016.

The research was conducted all over Poland. It included 156 enterprises. It was a random-quota sampling. The research was based on the questionnaire containing 19 basic questions concerning analysed issues and 5 questions about respondent's particulars. For the needs of this chapter, only a part of obtained results that are considered important for illustrating the discussed issues are applied and presented.

4. Relationship Management – Results of Empirical Research

The aim of the research was to identify the expressions of relationship management in the studied group of Polish enterprises.

The research has been conducted in 156 companies, including 52 productive companies, 54 trading companies. and 50 service-providing companies.

Detailed information about the characteristics of the studied sample is shown in Table 1.

Table 1. The structure of the studied sample

Specification		Frequency	Rate of structure in %
predominant type of activity			
Production		52	33.3
Trade		54	34.6
Services		50	32.1
Total		156	100.0
the number of employees in the enterprise			
10-50 people		97	62.2
51-250 people		35	22.4
over 250 people		24	15.4
Total		156	100.0
period of operation on market			
5-10 years		25	16.0
11-15 years		32	20.5
16-20 years		30	19.2
over 20 years		69	44.2
total		156	100.0
geographical scope of activity			
local		12	7.7
regional		30	19.2
national		47	30.1
international		61	39.1
global		6	3.8
total		156	100.0
gained profit			
last year	yes	151	96.8
	no	5	3.2
last three years	yes	151	96.8
	no	5	3.2
last five years	yes	151	96.8
	no	5	3.2

Source: Own research

The sample is not representative for the entire population. Thus, the research does not allow for generalization and forming conclusions about the entire population, and obtained results only show the situation and relationships occurring in the studied sample.

Representatives of individual entities were asked what management model is implemented in their enterprise. According to the statement presented before (defined on the basis of initial interviews before the research), only in three cases (1.9%) relationship management is indicated, whereas 85 entities (which constitutes 54.5% of studied sample) declare that they do not have a defined management model. Almost 20% of the entities declare management by objectives, 9% management by value, 4.5% process management and 10% by other management model (mainly quality management).

In the light of these findings an attempt was made to show that even though entrepreneurs did not declare that relationships were managed in their companies, there is a lot of evidence that prove how important for functioning of entities on contemporary market are the relationships that can be perceived as expressions of relationship management.

Then the respondents were asked how they approach the importance of relationships established by their companies (Table 2), and what are the reasons for their formation.

Table 2. Importance of relationship

Specification	Frequency	% of indications
Relationships – one transaction only		
not significant	44	28.2
of some significance	60	38.5
highly significant	52	33.3
total	156	100.0
Short-term relationships – several different transactions, without any influence for the company strategy		
not significant	23	14.7
of some significance	67	42.9
highly significant	66	42.3
total	156	100.0
Long-term relationships – related to the company strategy		
not significant	3	1.9
of some significance	28	17.9
highly significant	125	80.1
total	156	100.0

Source: Own research

Majority of respondents indicated relationships in which their organizations participate as significant or highly significant. This is clearly seen in the case of long-term relationships; here, 80% indications prove that these relationships are extremely important for the enterprise.

Fig. 1 presents the reasons why relationships are built in individual organizations, i.e. possible benefits from their establishment.

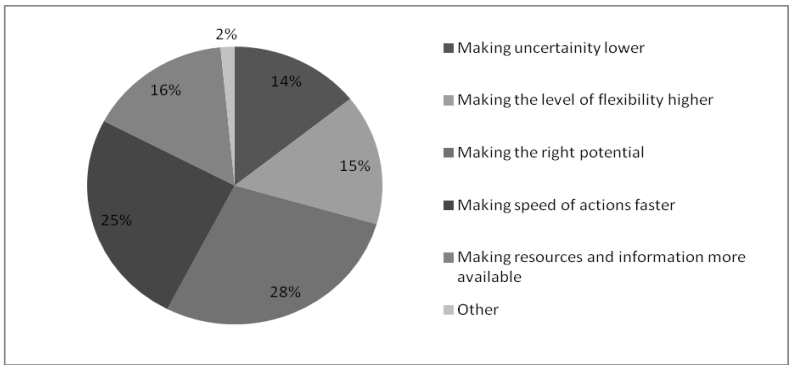

Fig. 1. Reasons why relationships are built

The need to provide appropriate potential for operation, and the need to accelerate the speed of acting, i.e., the factors essential for efficient actions that will satisfy growing and changing needs of participants in the relationships are the main reasons why relationships are built.

To emphasize the actions undertaken for relationship management, the respondents were asked if benefits resulting from relationships established with stakeholders are identified and how they are recorded. The results are shown in Figure 2.

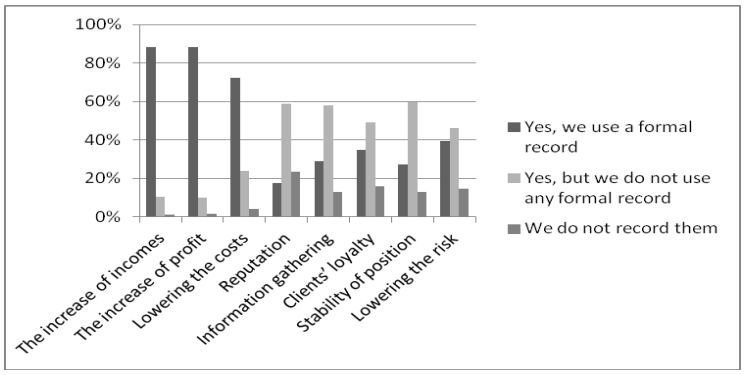

Fig. 2. Observing and recording benefits from relationships

It results from the diagram that enterprises are aware of multiple benefits coming from relationships, and notice both material as well as non-material benefits. Material benefits (mainly financial: growth of income, profit or cost reduction) are identified and recorded formally, whereas formal record is not applied in the case of non-material benefits (such as reputation, loyalty or stability of operation).

To confirm the actions in the sphere of relationship management, the respondents were asked to evaluate various actions undertaken in their enterprises that are important in the context of relationships. The expressions of management constitute the elements distinguished in the process of operationalization. The results of the evaluation are presented in Figure 3.

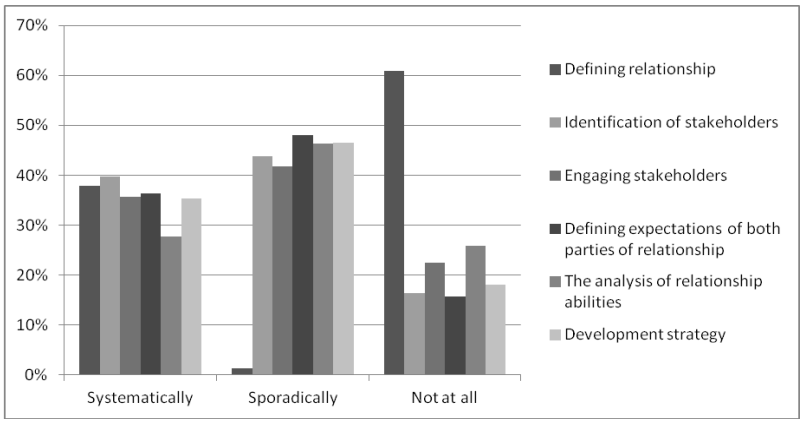

Fig. 3. Crucial actions concerning relationships

What seems surprising in the diagram is the result of 60% which suggests that relationships and their role in the enterprise are not defined. This confirms the previous assumption that there are no declarations in Polish enterprises that relationships are managed. However, other indications should also be mentioned. The respondents show that they identify stakeholders regularly – 38.5%, and occasionally – 46,8%; they involve stakeholders in 36.5% and 43.6% respectively; they define expectations of both parties in the relationships – 37.2% and 47.4% respectively.

Therefore, we can conclude that they undertake many actions which are important for defining relationships, even though they do not explicitly name what they do. Therefore, expressions of relationship management are clear in studied enterprises because in majority of studied entities actions that are defined in this chapter as the components that can be observed in economic practice, and operationally represent relationship management are implemented.

To confirm the role of relationships in an enterprise operation, the respondents were asked if the strategy of their company development includes the aspects of shaping the relationships.

The comparison of obtained responses is presented in Table 3.

Table 3. Relationships and the enterprise strategy

Specification	Frequency	% indications
Does the strategy of your company development include the aspects of relationships formation?		
yes, relationships are its fundamental part	19	12.2
yes, relationships are one of its elements	115	73.7
no, the strategy does not include building relationships	22	14.1
total	156	100.0

Source: Own research

The table shows that nearly 86% of the respondents gave a positive answer which means that relationships are one of the elements of the strategy in their company (73.7%), or they are its fundamental part (12.2%). Only 14.1% responses are negative which means that the respondents state that relationships are not included in the strategy of their enterprises.

5. Conclusions

Summing up the short presentation of the results of research concerning the role of relationships in functioning of contemporary companies and the manifestations of relationships management in these enterprises, it can be stated that:

- according to adopted assumption, Polish enterprises do not declare that they manage relationships; only 3% of positive indications,
- entrepreneurs clearly notice possible profits resulting from establishment of relationships, while explicitly indicating the reasons for their establishment, i.e., the willingness to provide appropriate potential and increase the speed of actions,
- the respondents also state that both material and non-material benefits resulting from relationships are defined in their enterprises. In the case of some of them (mainly material – financial), formal record is applied. This confirms that the actions concerning relationships are formalized,
- the respondents also show that several actions, perceived as fundamental in the context of relationships, that are the premises for relationship management such as identification of stakeholders, involvement of stakeholders or analysis of expectations of both parties to the relationships are implemented in their companies,
- relationships are one of the elements of strategy in majority of the studied enterprises.

All these conclusions allow for stating that it is shown in the studied sample of enterprises, that relationships perform a significant role in successful functioning of contemporary enterprises, and actions typical of relationship management that can be approached as the expressions of relationship management are observed in this group of enterprises. According to the previous description, the elements of planning (noticing the role of relationships), organizing (identification of stakeholders and engaging them), motivating (identification of gains) and controlling (verification of the expectations from both parties of relationships) can be seen in these actions.

REFERENCES

[1] Zakrzewska-Bielawska, A. (2014). Ewolucja Szkół Strategii: Przegląd Głównych podejść i koncepcji, W: Krupski, R., *Zarządzanie strategiczne. Rozwój koncepcji i metod*, Wałbrzych, Prace Naukowe Wałbrzyskiej Wyższej Szkoły Zarządzania i Przedsiębiorczości No. 2, s. Pp. 9-29.

[2] Westerlund, M., Rajala R., Leminen S. (2008). SME business models in global competition: a network perspective, *International Journal of Globalisation and Small Business*, Vol. 3, pp. 342-358.

[3] Jedynak, P. (2015). Relacje organizacji z otoczeniem. Perspektywa znormalizowanych systemów zarządzania, W: Borys, T., Rogala, T. P., Skowron, P., Zrównoważony rozwój organizacji – odpowiedzialne zarządzanie, Wrocław, Prace Naukowe UE we Wrocławiu, s. Pp. 323-335.

[4] Hillman A., Keim G. (2001). Stakeholder value, stakeholder management, and social issues: What's a bottom line? *Strategic Management Journal*, vol. 22 (2), pp. 125-129.

[5] Ruf B., Muralidhar K., Brown R., Janney J., Paul K. (2001). An Empirical Investigation of the Relationship Between Change in Corporate Social Performance and Financial Performance: A Stakeholder Theory Perspective, *Journal of Business Ethics*, vol. 32, pp. 143-156.

[6] Choi J., Wang H. (2009). Stakeholder relations and the persistence of corporate financial performance, *Strategic Management Journal*, vol.30, pp. 895-907.

[7] Romanowska, M. (2002). *Przedsiębiorstwo doskonałe w świetle współczesnych koncepcji zarządzania*, W: Godziszewski, B., Haffer, M., Stankiewicz, M. J., *Przedsiębiorstwo na przełomie wieków*, Toruń, UMK, s. P. 304.

[8] Ciszewska-Mlinarić, M., Mlinarić, F., Obłój, K. (2011). Zdolność relacyjna, kompetencje organizacyjne i wyniki finansowe małych i średnich firm słoweńskich, *Master of Business Administration*, Vol. 4 No. 111, p. 23.

[9] Adamik, A. (2008). *Creating of Competitive Advantage Based on Cooperation*, Łódź Wydawnictwo Politechniki Łódzkiej.

[10] Pierścionek, Z. (2007). *Strategie konkurencji i rozwoju przedsiębiorstwa*, Warszawa, Wydawnictwo Naukowe PWN.

[11] Kale P., Dyer J. H.; Singh H. (2002). Alliance capability, stock market response, and long-term alliance success: the role of the alliance function, *Strategic Management Journal*, vol. 23, no. 8, pp. 747-767.

[12] Capaldo A. (2007). Network structure and innovation: the leveraging of a dual network as a distinctive relational capability, *Strategic Management Journal*, vol. 27, no. 6, pp. 585-608.

[13] Danielak, W., 2012. *Kształtowanie kapitału relacyjnego w małym i średnim przedsiębiorstwie*, Wrocław, Wydawnictwo UE we Wrocławiu.

[14] Kwiecień, A. (2015), Efektywność, ryzyko i ocena efektywności relacji, W: Kosiń, P., Woźniak-Sobczak, B. *Studium efektywności przedsiębiorstwa w sieci. Perspektywa renty sieciowej*, Katowice, Wydawnictwo UE w Katowicach, s. pp. 120-141.

Contemporary Challenges of Evaluation Methodologies in Management Theory and Social Sciences

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Keywords: Evaluation methodologies, Social sciences, Management theory, Transdisciplinary approach

1. Introduction

Evaluation processes play an increasing role in management and social sciences in connection with the need to assess and minimize the risk of various types, often unique and complex activities. Implementation of these processes should be based on the accomplishment resulting from the development of various fields and scientific disciplines. Among them, achievements related to the areas of social sciences, management theory as well as progress in the fields of computer science and data science are greatly important.

Evaluation can be based on a transdisciplinary approach or perceived as a new, independent scientific discipline. Science is the part of human knowledge that describes the surrounding reality, and evaluation is what examines the impact of human actions in this reality. Both in scientific research and evaluation there are systematic investigations of these phenomena [1].

A set of concepts, theories and relatively easy to determine subjects of evaluation studies entitle to build a stable foundation for evaluation science. To ensure further development of this science, it is necessary to define contemporary challenges and necessary tasks that are related to evaluation methodologies. A theoretical discussion is necessary, despite the clearly empirical nature of evaluation. In order to facilitate this kind of considerations, it is useful to narrow the area of discussion to the theory of management and social sciences. Enlargement of considerations into other fields and scientific disciplines is possible during further development of the methodological bases of the evaluation science.

The main objective of this publication is to discuss contemporary challenges and tasks necessary to be undertaken that result from the current state of knowledge in certain methodologies of evaluation observed from the perspectives of management theory and social sciences. Such discussion is needed in order to achieve progress in both evaluation methodologies and business studies which are important subjects in social sciences.

2. Evaluation Methodologies and Methods

Evaluation is usually associated with estimating values of assessed objects, e.g., policies, programs, projects, individual products, performance of entire organizations and others. M. Scriven defines the evaluation of anything as a systematic process of investigating its quality, merit and value (worth). He emphasizes the need for an interdisciplinary way of thinking, meaning the use of approaches, methods, techniques and tools from various scientific disciplines in evaluation processes [2]. The evaluation methodologies are used to support the formulation of new paradigms, theoretical models, comprehensive analyses and formulation of recommendations for individual methods that may be useful in various ways in this field.

Transdisciplinary and systemic approaches should play a significant role in evaluation methodologies, which can be based on the achievements, approaches, methods and tools known from social, economic, management, legal, political, public administration and other sciences. Such approaches make it possible to build general principles and theoretical foundations for methodologies, methods and tools used. In the case of evaluation of programs and projects, the effectiveness of interventions made with their participation, is often based on research approaches, fundamental theories, methodologies and scientific methods from social sciences. The implementation of evaluation processes is mainly based on the application of these methodologies and suitable scientific methods to systematic study of improvement the social conditions in specific political and organizational environments [3].

Choosing the right methodologies and scientific methods may be based on the treatment of systematic evaluation studies being carried out as a multi-stage process in which the following stages can be distinguished, e.g.: structuring evaluation process, data collection, data analysis, results preparation as well as suggesting conclusions and recommendations.

Many various scientific methods and tools can be assigned to individual stages of such process.

Among the methods that are useful in the first stage are, for example, the following: theory-based approaches, Logical Framework Approach based methods, classical SWOT analysis, Metaplan (shared understanding) and others. At the stage of data collection, for example, following methods may be suitable: qualitative research, interview, survey, participatory methods, fieldwork observation, secondary data-based methods, rapid appraisal methods and others. Data analysis stage, among other methods, uses econometric models, statistical analyses, shift analysis, comparative study, a wide array AI inspired methods (e.g., neural networks) [4], mixed intelligent systems [5] and others. In the last stage, most useful of all, are: multi-criteria expert estimations, cost-effectiveness and cost-benefit analysis, benchmarking, impact evaluation, and various statistical multi-criteria analysis.

3. Evaluation Methodologies Development

Further development of evaluation methodologies is possible thanks to using management and social sciences and their features. Pluralistic social sciences are deeply divided by the following ways: the separate disciplines and sub-disciplinary fields (the American Economic Association currently recognizes several hundred sections), specific substantive problems (with its own methodological obstacles and opportunities), theoretical frameworks (with its own explicit and implicit methodology), by their various methods as well as in quantitative and qualitative evidence [6]. The methodological pluralism, applications of multi-method approaches and using various methods in a single research, are typical for social sciences and in line with the traditional understanding of evaluation.

The development of pluralistic methodologies and transdisciplinary approaches is necessary in connection with the implementation of an increasing number of evaluated objects and activities, whose significance, objectives and effects increasingly go beyond financial measurable indicators. Nowadays, relatively few business activities and projects are purely commercial in nature, in which it is possible to use a relatively small number of criteria that are quantitative, legible and do not raise any interpretation doubts. Previously, only in the case of public and European projects, the evaluation criteria were characterized by considerable complexity and interpretation doubts. Limiting ourselves to only few, simple methods based on financial indicators is not advisable and it is necessary to carry out multi-faceted research and considering the diversified project goals and stakeholders' needs. It is usually necessary to carry out evaluation studies based on the adopted system of various criteria and requiring the use of many different methods. Only when using methodological

pluralism, it is possible to understand better the assessed projects, their improvement and development.

During the use of pluralistically developing evaluation methodologies, it is worth using not only the impressive scientific achievements resulting from the progress of modern social sciences, management theory, but also drawing an inspiration from the wide possibilities of new ICT technologies, learning intelligent systems and technologies based on artificial intelligence. These new technologies can be crucial for the implementation of the data collection and analysis stages. The results of the whole evaluation processes depend mainly on the correctness of these two stages and the quality of the methods used. The evaluation methodologies applied so far do not usually take into account barriers resulting from the occurrence of Big Data collections, as well as frequently occurring inconsistency, uncertainty and doubtful quality and mixing of both structured and unstructured data. Due to the constant increase in volume, variety and velocity of data, there are real needs in methodological research related to collecting and analysing sparse and dense data [7]. Previous literature in the field of methodologies and methods that consider Big Data and Data Science methods in the evaluation processes is not extensive [8]. Such approaches determine possible directions of evaluation methodology development.

The search for new directions in the development of methodology and methods of evaluation favors the advances in the processes of building a multidisciplinary body of knowledge that forms the basis of nascent evaluation science. Knowledgeable evaluators should apply the developed and increasingly extensive, theoretical and practical body of knowledge useful in conducting studying, assessing and improving interventions [1].

4. Conclusions

Treating evaluation as a science is accepted and promoted by many scientific communities.

Among branches of sciences, formal, natural and social sciences are usually distinguished.

Evaluation science is the closest to empirical sciences such as social sciences and their research methods. For this reason, building the basics of evaluation methodologies, is worth drawing on the experience and achievements of management and social sciences. These sciences often use interdisciplinary approaches, that are based on consideration within one, common, holistic, interdisciplinary frameworks, many diverse concepts, approaches, methods, techniques and tools.

The further development of evaluation as a scientific discipline is related to the inclusion of many interdisciplinary methodological threads and the search for the possibility of building a new, coherent theory that combines the multiplicity of research trends. High hopes can be associated with the possibilities of a system approach, which allows combining a wide variety of quantitative solutions and increasingly developed qualitative methods. This approach may contribute to the further development of interdisciplinary methodological achievements related to the conduct of evaluation studies that allow considering the hard-to-measure features of assessed objects, which is not easy to express in a quantitative form. The development of evaluation methodologies, based on interdisciplinary drawing on the achievements of various scientific disciplines in the field of methods available there, requires further research aimed at the efficient implementation of their adaptation processes.

REFERENCES

[1] Patton, M. Q. (2018). Evaluation Science. American Journal of Evaluation 39(2), pp. 183-200.
[2] Scriven, M. (1991). Evaluation thesaurus. Sage Publications, Inc., London, p. 1.
[3] Rossi, P. H., Lipsey, M. W., Henry, G. T. (2019). Evaluation: A Systematic Approach. Sage Publications, Inc., Thousand Oaks, p. 6.
[4] Grzeszczyk, T. A. (2017). Applications of Biologically Inspired Models in Project Evaluation. Adam Jablonski (ed.), Business Models: Strategies, Impacts and Challenges, Nova Science Publishers, Inc., pp. 241-248.
[5] Grzeszczyk, T. A. (2018). Mixed Intelligent Systems: Developing Models for Project Management and Evaluation. Palgrave Macmillan/Springer International Publishing AG.
[6] Gerring, J. (2012). Social Science Methodology: A Unified Framework. Cambridge University Press, pp. 3-5.
[7] Grzeszczyk, T. A. (2017). Rough Rule-Based Systems for Sparse and Dense Data Analysis Used in Project Evaluation. In: Proceedings of the 2017 International Conference on Management Science and Management Innovation, AEBMR-Advances in Economics Business and Management Research 31.
[8] Olsson, N. O. E., Bull-Berg, H. (2015). Use of Big Data in Project Evaluations. International Journal of Managing Projects in Business 8(3), pp. 491-512.

Theorizing on Coopetition as Dimension of Entrepreneurial Orientation

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Keywords: Coopetition, entrepreneurship, entrepreneurial orientation, competition, inter-organizational cooperation

1. Introduction

Entrepreneurship is an important characteristic of organizations and individuals. It is important both for science and practice. A deeper understanding of entrepreneurs' behaviours is crucial for theory development. However, this understanding has important practical and managerial implications, as indicates some alternative way of pursuing opportunities, namely cooperation and coopetition. This is additionally important in the context of the development of numerous network structures, that gains the attention of numerous entrepreneurs.

The contemporary theory of entrepreneurship proposes several concepts of entrepreneurship. One of them is entrepreneurial orientation. It comprises several dimensions of entrepreneurial activity, namely, risk-taking, innovativeness, proactiveness, autonomy and competing. The latter is sometimes identified with aggressive posture towards competitors.

However, we can observe many examples of cooperation among entrepreneurs, that pertains also relationships between competitors. Such a situation is reflected in coopetition concept. Despite this, the contemporary theory of entrepreneurship tends to neglect the role of cooperation behaviours of entrepreneurs and their flexibility in relationships with other entrepreneurs. This chapter refers to this gap in the theory.

The aim of this study is to examine the role of coopetition in pursuing entrepreneurial opportunities and identify its implication for the entrepreneurship theory and research. This examination tends to contribute to the entrepreneurship theory through including cooperation behaviours and proposing augmented model of entrepreneurial orientation.

This is a conceptual study. It based mainly on the literature on organizational entrepreneurship and coopetition, and a few studies that link both these fields. Particularly, the literature on cooperation and entrepreneurial orientation is analysed in terms of mutual connections and common approaches.

This chapter is structured as follows. Firstly, coopetition is presented. Secondly, entrepreneurship and entrepreneurial orientation are introduced. Thirdly, the role of the inter-organizational relationship in entrepreneurial context is elaborated. Fourthly, the model linking entrepreneurial orientation and coopetition is proposed. Finally, the limitations and implications of this study, as well as recommendations for future studies are presented.

2. Theoretical Background

2.1. Coopetition

The term coopetition was introduced by Noorda, however, it begun recognized after Brandenburger and Nalebuff published their book *Co-opetition* in 1996 [3]. Bouncken *et al*., [3, p. 592] define coopetition as "a strategic and dynamic process in which economic actors

jointly create value through cooperative interaction, while they simultaneously compete to capture part of that value." Coopetition is commonly identified with simultaneous cooperative and competitive interactions between the same actors. They can be direct competitors, or (in a broader sense) also suppliers, customers or complementors [3]. In coopetitive relationship, we can observe different configurations, wherein cooperation or competition dominates, or are equal [2]. Competition manifests through maximizing private gains, behaving opportunistically, and commencing a zero-sum approach [9]. Because of its dual nature, managers deal with coopetition paradox and the resultant paradoxical tension, that requires them coopetition capacity [24].

Coopetition is a universal phenomenon. It is visible across multiple industries and types of organizations [1]. Researchers underline the role of coopetition in the innovation process [27].

It is examined in the context of organizational sustainability [6]. For companies, coopetition is a strategic option for meeting the firm objectives more efficiently, however, some firms consider it as the only option for finding a potential business partner [31].

Coopetition networks increase alongside with firm's development and tend to replace social and reputational networks that play an important role at earlier stages of development [18]. Because coopetition occurs in changing environments, and actually somehow reflects an entrepreneur's reaction for these changes, it is more a process than a discrete situation [16].

2.2. Entrepreneurship

Entrepreneurship is "a process by which individuals – either on their own or inside organizations – pursue opportunities without regard to the resources they currently control" [32, p. 23]. It is also identified with behaviours that are related to the creation of value through the exploitation of opportunities [14]. The entrepreneurial opportunities are "those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production" [5], quoted in: [30, p. 220]. The most visible part of the entrepreneurial process is creating an organization. For some scholars, this activity differentiates entrepreneurs from non-entrepreneurs [12]. The entrepreneurial process involves the identification and evaluation of opportunity, development of the business plan, determination of the required resources, and management of the resulting enterprise [14]. The entrepreneurial process does not end when the organization is founded, but it is continued within that organization, what results in initiating new projects or founding new spin-off organizations. This process can be repeated periodically. The activities aimed at creating new businesses in established companies are analysed in the frame of 'corporate entrepreneurship' [23]. Entrepreneurship is also identified with attitudes, namely the desire to achieve, the passion to create, the yearning for freedom, the drive for independence, hard-working, calculated risk-taking, continuous innovation, and undying perseverance [21]. They enable entrepreneurs to pursue an opportunity successfully.

One of the conceptualizations of entrepreneurship at the organizational level is the entrepreneurial orientation (EO). This concept is based on the definition of an entrepreneurial firm, as that "one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations, beating competitors to the punch" [22, p. 771]. Covin and Slevin have built a scale to measure the EO, which is comprised of three dimensions: risk-taking, innovativeness, and proactiveness [7], and Lumpkin and Dees augmented it by adding two more dimensions: autonomy and competitive aggressiveness [19]. Since that time, some modifications of the scale were proposed. The numerous researches have proved utility and reliability of EO scales. They have evidenced the relationship between EO and a firm's performance (e.g., [15]). Moreover, Schillo suggests

that entrepreneurial orientation could be useful for practitioners as a source of managerial recommendations [29].

3. Linking Two Fields

3.1. Coopetition in Pursuing Entrepreneurial Opportunities

Coopetition relates to simultaneous competition and cooperation. Competition is reflected in the theory of entrepreneurship and it is highlighted in EO as one of its dimensions, namely competitive aggressiveness. It refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position. It can take the form of head-to-head confrontation, and it can utilize unconventional methods of competing [19].

Cooperation tends to be neglected in the theory of entrepreneurship. However, there are several reasons for linking collaboration and entrepreneurship. Firstly, an entrepreneur's main motivation is to pursue an opportunity. They are able to follow this aim with different solutions that are efficient. In many cases they are ready or even prefer to cooperate. It is observed in modes of founding new companies, when many entrepreneurs start their business in partnership, which is also a case of many highly innovative start-ups [28]. Many existing entrepreneurial firms cooperate within networks, supply-chains, or clusters. Secondly, creating such long-term cooperation can be per se an entrepreneurial act, similar to creating a new firm, which is perceived as a manifestation of entrepreneurship [10]. Thirdly, many entrepreneurs, especially those running small businesses, are limited in their activity with the lack of resources. For them, cooperation is a way of overcoming resource limitation [20]. Finally, entrepreneurship is about creating value. This can be afforded with cooperation rather than with competing, as the latter is more about capturing value at the expense of the partner [4].

All above-mentioned situations can be reasons for opportunity-driven entrepreneurs to cooperate with competitors if it enables then exploiting an opportunity. However, the environment changes, which results in the appearance of new opportunities (as well as threats), requires entrepreneurs to be flexible in their relationships with other partners, including competitors. It means, they need to be able to compete and cooperate, as well as do both simultaneously. Thus, coopetition is additionally a manifestation of an entrepreneur's flexibility.

There are some concepts that suggest an association between entrepreneurship and cooperation. Collaborative entrepreneurship highlights a company's ability to collaborate outside the organization [26] that enables to create ideas that emerge from a sharing of information and knowledge that result in economic value [13]. In the similar vein, the symbiotic entrepreneurship focus on 'an enterprising effort by multiple parties, each of which benefits from the joint effort, such that added value is created' [8]. These processes are also reflected in the concept of alliance entrepreneurship, understood as an entrepreneurial practice resulting in the proactive formation of strategic tie-ups with partners to acquire strategic assets through these inter-firm relationships [17]. This concept was also analysed from the EO perspective as an entrepreneurial collective activity which aims to improve the partners' entrepreneurial status in terms of their innovativeness, risk-taking, and pro-activeness [25].

Finally, very rare studies relate to association between entrepreneurship and coopetition.

Soppe *et al.*, found that vertical coopetition (firm-supplier, -buyer, and -subcontractor relationships) is a ubiquitous phenomenon for entrepreneurial firms (specifically, their sample consisted of VC-financed companies) [31]. Bouncken et al. posit association of coopetition and entrepreneurship (as well as strategy, innovation, management, etc.) [3]. Galkina and Lundgren-Henriksson argue that "coopetition resembles an entrepreneurial process and

should thus be studied employing theories from the entrepreneurship domain, too" [11, p. 158].

The above reasoning leads to the conclusion, that in some situation's entrepreneurs can pursue opportunity together with other entrepreneurs, through mutual cooperation, while in other situations they can prefer competition for the opportunity. And there are situations when entrepreneurs need to cooperate and compete simultaneously, i.e., they can pursue entrepreneurial opportunities through coopetition.

3.2. Including Coopetition to Entrepreneurial Orientation

The above deduction suggests that coopetition deserves to be reflected in entrepreneurship concepts and their operationalization. In this study, we attempt to analyze coopetition in the context of entrepreneurial orientation. This concept comprises several dimensions, however, most common are three-dimensional (comprising risk-taking, innovativeness and proactiveness) and five-dimensional (three previously mentioned and autonomy and competitive aggressiveness).

In case of five-dimensional operationalization, we posit to combine competition with cooperation, that results in replacement of competition (or competitive aggressiveness) with coopetition. Another solution is just to add one more dimension, i.e., cooperation. Such development of the EO concept is presented in Fig. 1.

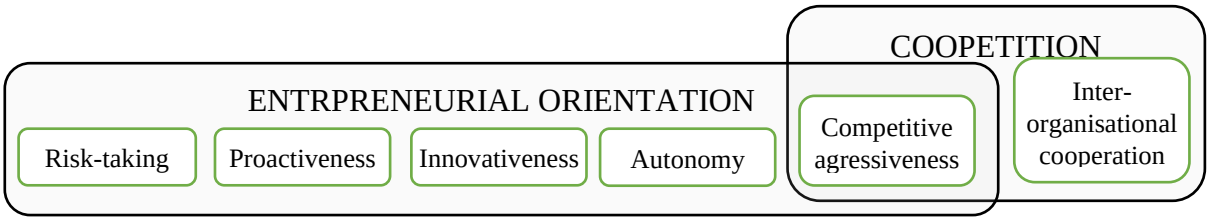

Fig. 1. Five-dimensional concept of entrepreneurial orientation comprising coopetition.
Source: own elaboration

In relevance to operationalization that consists of three dimensions (i.e., risk-taking, innovativeness and proactiveness), it is recommended to add coopetition as a fourth one that, specifically, represents entrepreneurial coopetition to pursue an opportunity. Such development of the EO concept is presented in Fig. 2.

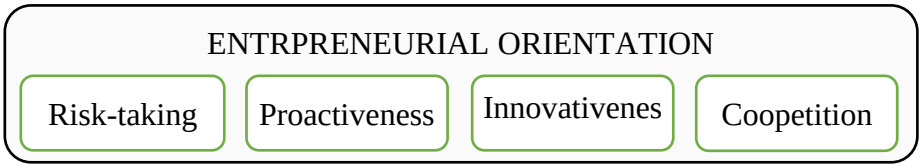

Fig. 2. Four-dimensional concept of entrepreneurial orientation:
coopetition and three basic dimensions of EO
Source: own elaboration

The coopetition as a dimension of entrepreneurial orientation somehow represents an entrepreneur's flexibility, at least in terms of external relations with other organization.

We believe that the proposed model reflects the entrepreneurial activity of majority organizations. However, in the case of non-profit organizations representing social entrepreneurship, wherein competition has minor importance, the better modification can consist of the inclusion of inter-organizational cooperation instead of coopetition.

4. Limitations and Recommendations

The main limitation of this study comes from its method and scope. The study investigates the literature; however, it is rather argumentative than a systematic literature review. This study does not investigate the fields that are somehow associated with the main subject, like networking, clusters, supply-chains. As a preliminary investigation in the field, it indicates several directions recommended for future research. In the field of entrepreneurship, the comparative studies (both quantitative and qualitative) of coopetition, cooperation and competition in terms of their effectiveness and efficiency in pursuing entrepreneurial opportunities are recommended. It is also suggested to examine the role of the ability of simultaneous cooperative and competitive behaviours as well as entrepreneurs' flexibility in terms of external cooperation. In the field of coopetition research, it is recommended to investigate the role coopetition in in the entrepreneurial context in comparison to other contexts. The above-mentioned problems require examinations in the for-profit and no-profit sector, as both groups can differ in terms of their relationship with other entities. The methodology of coopetition research in entrepreneurial context needs to be developed, specifically its subjective and objective measures. Finally, the implementation of coopetition into EO scales is recommended and, consequently, testing such scales in terms of its reliability and utility for organizations of different types in terms of aim, size, or industry.

5. Conclusions

This study investigates the role of coopetition in pursuing entrepreneurial opportunities. Its main result are models that augment entrepreneurial orientation with coopetition. This study contributes to theory development mainly in the field of entrepreneurship theory. It indicates the role of coopetition in pursuing entrepreneurial opportunities. This finding has some consequences for entrepreneurship conceptualizations and their operationalization, including measurement scales dedicated to entrepreneurship. Additionally, this study contributes to the theory of coopetition and inter-organizational relationships, by exposing the next field wherein coopetition plays an important role.

This study has a preliminary nature and it rather unveils research problems, than provides answers. Thus, further research is recommended on the role of coopetition in pursuing entrepreneurial opportunities. In particular, the empirical examination of the argued relationship is proposed, within samples consisting of different types of organizations and representing different industries and geographies. The results of such studies and their managerial implications can enhance the connection between science and business in the field of entrepreneurship.

REFERENCES

[1] Bengtsson, M., Eriksson, J., Wincent, J. (2010). Co-opetition dynamics – an outline for further inquiry. Competitiveness Review: An International Business Journal, 20(2), pp. 194-214. DOI: https://doi.org/10.1108/10595421011029893.

[2] Bengtsson, M, Kock, S (2000) 'Coopetition' in business networks: to cooperate and compete simultaneously. Industrial Marketing Management, 29(5), pp. 411-426.

[3] Bouncken, R.B., Gast, J., Kraus, S., Boges, M. (2015). Coopetition: a systematic review, synthesis, and future research directions. Review of Managerial Sciences 9(3), pp. 577-601. DOI: https://doi.org/10.1007/s11846-015-0168-6.

[4] Brandenburger A, Nalebuff B (1996) Co-opetition. Doubleday Publishing, New York.

[5] Casson, M. (1982). The entrepreneur. Totowa, NJ: Barnes & Noble Books.

[6] Christ, K.L., Burritt, R.L., Varsei, M. (2017). Coopetition as a Potential Strategy for Corporate Sustainability. Business Strategy & the Environment, 26(7), pp. 1029-1040.
[7] Covin, J.G., Slevin, D.P. (1989). Strategic management of small firms in hostile and benign environments. Strategic Management Journal, 10, pp. 75-87. DOI: 10.1002/smj.4250100107.
[8] Dana, L.P., Etemad, H., and Wright, R.W. (2008). Towards a paradigm of symbiotic entrepreneurship. International Journal Entrepreneurship and Small Business, 5 (2), pp. 109-126.
[9] Das, T.K., Teng, B.-S. (2000). Instabilities of strategic alliances: An internal tensions perspective. Organization Science, 11(1), pp. 77-101.
[10] Franco, M., Haase, H. (2013). Firm resources and entrepreneurial orientation as determinants for collaborative entrepreneurship. Management Decision, 51(3), pp. 680-696.
[11] Galkina, T., Lundgren-Henriksson, E.L. (2017). Coopetition as an entrepreneurial process: Interplay of causation and effectuation. Industrial Marketing Management, 67(Nov), pp. 158-173. DOI: https://doi.org/10.1016/j.indmarman.2017.09.004
[12] Gartner, W.B. (1989). "Who is an entrepreneur?" Is the wrong question. Entrepreneurship Theory and Practice, Summer, pp. 47-67.
[13] Gupta, A.K. and Govindarajan, V. (2000). Knowledge flows within multinational corporations. Strategic Management Journal, 21(4), pp. 481-510.
[14] Hisrich, R.D., Peters, M.P., Shepherd, D.A. (2005). Entrepreneurship (6th Edition). New York: McGraw-Hill Irwin.
[15] Hughes, M., Morgan, R.E. (2007). Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. Industrial Marketing Management, 36, pp. 651-661. DOI: 10.1016/j.indmarman.2006.04.003
[16] Hung, S-W, Chang, C-C (2012). A co-opetition perspective of technology alliance governance modes. Technology Analysis & Strategic Management, 24(7), pp. 679-696.
[17] Khalid, S., and Larimo, J. (2012). Effects of alliance entrepreneurship on common vision, alliance capability and alliance performance. International Business Review, 21(5), pp. 891-905.
[18] Lechner, C. and Dowling, M.J. (2003), Firm networks: external relationships as sources for the growth and competitiveness of entrepreneurial firms. Entrepreneurship and Regional Development, 15(1), pp. 1-26.
[19] Lumpkin, G.T., Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. Academy of Management Review, 21, pp. 135-172.
[20] Luo, Y. (2007). A coopetition perspective of global competition. Journal of World Business, 42(2), pp. 129-144.
[21] Ma, H., Tan J., (2006). Key components and implications of entrepreneurship: A 4-P framework. Journal of Business Venturing, 21, pp. 704-725. doi: 10.2139/ssrn.1552136
[22] Miller, D. (1983). The correlates of entrepreneurship in three types of firms. Management Science, 29(7), pp. 770-791.
[23] Morris, M.H., Kuratko D.F. (2002). Corporate Entrepreneurship. Entrepreneurial Development within Organizations. Mason: Thomson South-Western.
[24] Raza-Ullah, T., Bengtsson, M., Vanyushyn, V. (2018). Coopetition capacity: What is it? In: A.S. Fernandez, P. Chiambaretto, F. Le Roy, W. Czakon, The Routledge Companion to Coopetition Strategies (pp. 197-204). Abingdon: Routledge.
[25] Rezazadeh, A., and Mahjoub M. (2016). Alliance Entrepreneurship and Entrepreneurial Orientation: The Mediating Effect of Knowledge Transfer. Gadjah Mada International Journal of Business, 18(3), pp. 263-284.
[26] Ribeiro-Soriano, D., and Urbano, D. (2009). Overview of collaborative entrepreneurship: An integrated approach between business decisions and negotiations. Group Decision and Negotiation 18 (5), pp. 419-430.
[27] Ritala, P., Kraus, S., Bouncken, R.B. (2016). Introduction to coopetition and innovation: contemporary topics and future research opportunities. International Journal of Technology Management (IJTM), 71(1/2), pp. 1-9.
[28] Ruef, M. (2010). The entrepreneurial group: Social identities, relations, and collective action (In the Kauffman Foundation Series on Innovation and Entrepreneurship). Princeton: Princeton University Press.

[29] Schillo, S. (2011). Entrepreneurial Orientation and Company Performance: Can the Academic Literature Guide Managers? Technology Innovation Management Review, November, pp. 20-25.
[30] Shane, S., Venkatraman, S. (2000). The promise of entrepreneurship as a field of research. Academy of Management Review, 25, pp. 217-226.
[31] Soppe B., Lechner, C., Dowling, M. (2014). Vertical coopetition in entrepreneurial firms: theory and practice. Journal of Small Business and Enterprise Development, 21(4), pp. 548-564. DOI: https://doi.org/10.1108/JSBED-03-2014-0052
[32] Stevenson, H.H., Jarillo J.C. (1990). A Paradigm of Entrepreneurship: Entrepreneurial Management. Strategic Management Journal, 11(4), pp. 17-27.
[33] Schillo, S. (2011). Entrepreneurial Orientation and Company Performance: Can the Academic Literature Guide Managers? Technology Innovation Management Review, November, pp. 20-25.

Development of Rural Entrepreneurship as Population Fixer: Case of Province of Ávila

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1. Interest of Research and Originality

Rural areas are characterized by the dispersion of urban centers, low population density and demographic aging. These factors constitute a barrier in the implementation of new services and projects in rural areas, limiting the opportunities of young people and hindering access to goods and services for the population as a whole [2]. This reality poses challenges to the quality of life and equal opportunities for people living in rural areas, especially in municipalities with a high degree of depopulation and a low level of initiatives [3]. This reality, takes special virulence in Castilla León and, especially, in the province of Ávila, where only 5 municipalities exceed 5,000 inhabitants (Ávila, Arévalo, Arenas de San Pedro, Las Navas del Marqués and Candeleda) and there has been a constant population decline, especially virulent in rural areas, which has led to a decrease in the number of inhabitants from 167.015 in 2014 to 162.263 in 2016. In short, the rural context has experienced in recent years a phenomenon in which each there are more people reaching an advanced age and, on the other hand, a decrease in the young population that fixes and maintains the rural nuclei in which there is a contextual reality of scarcity of services and absence of interventions. It should be a priority for any institution linked to the province of Ávila to provide the valid tools to change this trend. Therefore, this research has as one of its top priorities not only the study of population aging, the increase in the dependent population, the loss of competitiveness of rural areas, etc. but the implementation of measures and actions that allow transforming these threats into opportunities [4].

With the development of economically depressed areas, we seek to respond to three basic needs to make possible a sustainable future for the region and the people who inhabit it:

- Improve the training and well-being of the people who live in this environment offering future perspectives.
- Make economic and population growth viable in these areas, avoiding their gradual depopulation and impoverishment.
- Protect and conserve the capacity of the natural resource base to continue providing production, environmental and cultural services [5].

Practically, the only way out to avoid the gradual abandonment of these rural areas by their population, especially the young, is to provide opportunities and prospects for the future. With all of the above, the importance of the project and the interest of the chosen topic should be sufficiently clear. One of the main reasons for its appeal lies in its scalability [6].

2. Methodology

At first, it will be necessary to define a specific and encompassing geographical framework in which to measure results and evaluate initiatives. Therefore, in a first phase, a defined geographical area must be carried out and delimited, in order to extrapolate the conclusions and methodology to similar areas in which the same challenges are present. However, given that the research action framework will focus on municipalities with similar characteristics and problems, we are providing a methodological model applicable to practically all municipalities in the rural area of the province of Ávila. The originality of this project consists in an approach and in a totally different approach to the one carried out in projects with similar objectives. It is not about giving only entrepreneurship seminars or subsidizing business ideas, practices that have very little travel and almost no effect in the medium and long term. The aim is to apply a novel and measurable methodology that allows the members of the community to be heard in a different way, to create innovative solutions that respond to these needs and to implement solutions, taking into account financial sustainability. The importance of the theme chosen in this project, together with its interest and originality, makes it a first spring that should serve as a point of support for micro-entrepreneurship projects that prevent the depopulation first, and the abandonment later, of many towns in the province of Avila. This project will include all studies and current trends on collaborative economy, circular economy, micro-sponsorship, micro-entrepreneurship, etc. [7]. All within:

- THE TRIPLE BALANCE. The value proposition is based on this methodology for the search for solutions to generate employment, entrepreneurship opportunities, and economic, social and cultural development initiatives, minimize social inequalities or curb the impacts of climate change. The search for durable and sustainable solutions are the most effective means to overcome the ecological, social and economic crisis in which we are immersed, from people and for people, in their ecosystem.
- SUSTAINABLE DEVELOPMENT OBJECTIVES. They constitute a call for the adoption of measures to guarantee the sustainability and development of people and environments [8].

3. Objectives to be Achieved

Identification, validation, optimization and implementation of Triple Balance entrepreneurship projects that give economic, social and environmental boost to the rural territory of the province of Ávila. Promote micro-entrepreneurship as a tool for sustainability and population and economic maintenance in the municipalities of the province of Ávila [14].

This project will provide a proven methodological tool that will allow local and scalable entrepreneurship projects to be introduced in different municipalities, based on a previous phase of co-participatory design thinking, previously validated and with a follow-up process to substantially reduce the chances of failure of project and entrepreneur.

4. Specific Objectives [9]

- Validation of the project by all interested parties through a process of co-creation and citizen empowerment.
- Reactivate economically and socially depressed areas of the province of Ávila.
- Multidisciplinary approach from a 360° perspective.
- Generate processes of citizen participation in which people contribute their point of view regarding the challenges and opportunities that exist in the territory and how to deal with them.

- Generate innovation processes on new or existing ventures, to create sustainable business ecosystems.
- Accompaniment and mentoring of the enterprises.
- Prepare and promote strategic alliances with local regional and European entities.
- Define the action plan to provide an economic, ecological and social perspective articulated on some sectors identified and prioritized during the process of preparing this proposal.

5. Materials to be Used and Methodology to be Followed

The planned action framework will create a starting point as an element of economic revitalization and provide a project of provincial interest to cover various municipalities in the province of Avila. This opportunity should be exploited at first to re-launch economically an entire area of the province of Ávila, to subsequently create synergies, advance new projects that should allow creating wealth, opportunities and sustainability [14].

With this work, validated methodological work will be considered along with a field work that will allow application of entrepreneurial models applied to specific geographical areas.

We want to show that the results that will be obtained leave no doubt about the financial sustainability of the project. Once the model is applied in a single process of rural entrepreneurship, the successes achieved will far exceed the cost of the study. Within the budget will be included [10]:

- Theoretical and documented study of the economic, social and environmental situation of the geographical area to be studied.
- Mapping of resources with participatory processes to define strategic, operational and political objectives with face-to-face field studies.
- Generation of proposals generating connections with the environment.
- Prototyping and monitoring of sustainable business models in each geographical area.

These are methodologies that are already being applied successfully in other geographical areas and in which the cost-benefit ratio is highly favourable. The methodology of the investigation presents three fundamental parameters:

1. Design focused on people. This methodology helps to listen in a different way to the members of the community, create innovative solutions that respond to those needs and put into practice solutions, taking into account the financial sustainability.
2. “Glocal”. It is the mixture that occurs between local and elements with those of a globalized environment.
3. Strategic alliances: To achieve the effectiveness of this project, alliances between administrations, the private sector and civil society are needed.

It is a participatory process with concrete objectives that will result in the sharing and design of business plans for entrepreneurship projects that will have as protagonists the community itself (administration, entrepreneurs, entrepreneurs, citizens) that has previously shown the needs and opportunities.

Subsequent mentoring will be carried out on projects previously evaluated and tested, which will substantially reduce the probabilities of failure inherent in any business project, opening the possibility to seek new opportunities for investment and diversification in existing businesses.

The project will be based on “prototyping” as a response to the uncertainty management of our current context. It seeks to be a sustainable and innovative project driven and guided by the commonwealth and co-created by the citizens [11].

6. Work Scheme Raised

6.1. Approach

Hypothesis of the Challenges: Depopulation of rural areas, aging of the population, high rate of unemployment, democratize the knowledge around entrepreneurship and in this way minimize the risks of failure. Opportunity Hypothesis: Micro viable entrepreneurship projects that generate sustainable and lasting economic growth in the medium and long term. Export opportunities, development of natural spaces, tourism (wine tourism, hospitality, wine therapy, gastronomy, birding, nature tourism, sports tourism, hiking, astronomy ...), agricultural sector, handicrafts, sporting and cultural events (running, mountain biking, music, theatre ...), children's activities (farm school, nature learning programs, horseback riding ...), biomimicry and a long etc.

Differentiation:

- Concrete study and citizen co-working process for each municipality or geographical area.
- Marketing and business plan of each micro project.
- Triple balance management: Measurement and reflection on the ecological, social economic impacts that are generated.
- Knowledge and synergies: Interpretation spaces, Knowledge transmission programs in informal environments: oral tradition, identification and capacity building. Synergies with existing projects.

6.2. Scope of Investigation Project **[12].**

1. WORKSHOP KICKOFF OF THE PROJECT:

Interlocutor/s: Project's driving group

Objective: Define territorial, temporal, economic framework. Impacts on the triple bottom line.

2. RESEARCH:

Interlocutor/s: The territory.

Objective: Identification of challenges and opportunities, mapping of resources, observation in the field, telephone interviews

3. COLLECTIVE MAPPING:

Interlocutor/s: Citizenship in general (up to 60 people), potential entrepreneurs, cultural, business, neighbourhood associations, representatives of the deputation, of the public administration, of the municipality.

Objective: Validate the hypothesis of challenges and opportunities, raise insights that help us in the definition of the project, involve citizens in listening processes, citizen participation and decision-making in their own territory.

4. WORKSHOP DEFINE OBJECTIVES:

Interlocutor/s: Project's driving group

Objective: To deliver and validate a briefing of the current situation of the Denomination of Origin of Gredos, potential business niches, potential ventures. Prioritize four work areas and define next steps.

5. WORKSHOP WORK AREA 1:

Interlocutor/s: Entrepreneurial Community Nº 1

Objective: Generation of convergence proposals around the priorities and challenges detected during the Investigate phase.

5.1 WORKSHOP WORK AREA 2:

Interlocutor/s: Entrepreneurial community Nº 2
Objective: Generation of convergence proposals around the priorities and challenges detected during the Investigate phase.
5.2 WORKSHOP WORK AREA 3:
Interlocutor/s: Entrepreneurial Community Nº 3
Objective: Generation of convergence proposals around the priorities and challenges detected during the Investigate phase.
6. WORK MEETING:
Interlocutor/s: Project's driving group
Objective: Prioritize the promotion of entrepreneurship initiatives based on results, budget, local impact and other selected KPIs.
7. OPEN INNOVATION:
Interlocutor/s: The general public (up to 60 people), including technicians and politicians of the town halls and the entrepreneurship teams with whom we have worked.
Objective: Public presentation of the projects and proposals that are to be launched. Start-up of an open innovation laboratory to nourish and generate interconnections with the local, regional and international environment, depending on the impact and form.
8. PROTOTYPING WORKSHOPS (X3):
Interlocutor/s: up to 15 people and entities involved in the prototype/s
Objective: to accompany in the process of creation of prototypes that help the community to prove the detected opportunities. Define KPIs that help us measure and measure the impact achieved with the prototype.
9. MENTORING OR ACCOMPANIMENT
Interlocutor/s: Entrepreneur projects
Objective: to accompany in the process of growth of the company: business plan, service design, income accounts.
10. WORKSHOP ITERATION
Interlocutor/s: communities that have started the prototypes
Objective: measure, evaluate and pivot based on the results that have been reached in the development of the prototypes.
11. REPORTS
- Research Report: Current territory, challenges and opportunities that arise.
- investments Report: Summary of the enterprises and their potential business ecosystem.
- Results report [13].

REFERENCES

[1] "How to Thrive in the Next Economy: Designing Tomorrow's World Today". Thackara, J. Experimenta Editorial, 2016, pp. 13-16.
[2] "From the operational to the strategic". Madrid, L. https://angaraveca.com 2017.
[3] "The agent of local development". Cantarero, S. Editorial Académica Española, 2011, pp. 2-3.
[4] "The change of the regional development model and the new diffusion processes in Spain". Vázquez, A. Estudios Territoriales Magazine nº 20, pp. 87-110.
[5] "Economic and social entrepreneurship in Spain. Resource guide for young entrepreneurs" Pérez, S. Injuve, Ministry of Equality, 2009, Madrid, pp. 19-35.
[6] "Entrepreneurship and social economy, opportunities and effects in a changing society". Salinas, F. and Osorio, L. Ciriec-Spain, Journal of Public, Social and Cooperative Economics, nº 75, August 2012, pp. 129-151.
[7] "Entrepreneurship and entrepreneurship, two key concepts for local development". Contell, T. Revista Valenciana D'Estudis Autonómics, nª16, June/September 2016, pp. 173-178.
[8] "The economy of the common good". Felber, C. Deusto S.A. Editions, 2012, pp. 2-5.

[9] "Nuclei of rural entrepreneurs". National university of Colombia. Research group in rural management and development, pp. 2-8.
[10] "Rural entrepreneurial research: an integration into entrepreneurship field". Wortman, N. Agribusiness, 2010, pp. 10-15.
[11] "The community canvas guidebook, the guide to building meaningfull communitys". Luchisinger, N. https://community-canvas.org/ 2016.
[12] "Social Transformation and Innovation from Communication". Madrid, L. https://angaraveca.com 2016.
[13] "Opportunities and barriers to rural entrepreneurship". Miller, M.A. and Rodríguez, C. R. Rurápolis S.L. 2012, pp. 1-5.
[14] Náñez Alonso, S.L. The Tax Incentives in the IVTM and "Eco-Friendly Cars": The Spanish Case. Sustainability 2020, 12, 3398. p. 5.

Interlocking Directorate as Risk Mitigating Factor in Enterprise Acquisition Transactions

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Keywords: Enterprise acquisitions, risk, interlocking directorate, Social Network Analysis

1. Introduction

Enterprise acquisitions are treated as an instrument of implementing enterprise development strategy that carries a great deal of risk. It stems mainly from inflated transaction prices, insufficient diligence of operations, difficulty in maintaining transparency of strategic goals and focusing on them, and limited access to the company being acquired [1]. The factor limiting the above-mentioned risk categories could be interlocking directorate, that is, a situation when a person or a group of people who are members of bodies of one company are also members of the management board or supervisory board of another company [2]. It is assumed that one of the fundamental functions of interlocking is the reduction of uncertainty and limiting the risk of business activities through access to information thanks to the links to boards of other companies [3]. Serving on supervisory or management board of another company is considered a method of handling the environment uncertainty [4], a risk mitigating element providing access to significant strategic information that also facilitates obtaining the funds necessary [5]. In this elaboration it was assumed that a link between enterprises – acquisition partners – through interlocking directors can be a factor mitigating the risk at the pre-transaction stage. The objective of this elaboration is to present the results of the research that aimed at identifying the relations between the enterprises participating in acquisition transactions. The research encompassed 525 listed enterprises that participated in acquisition transactions during years 2008-2014. The Social Network Analysis (SNA) method was applied in the research. A significant aspect of the research conducted was determining the scope, structure and strength of interlocking relations of enterprises which participated in acquisition transactions during the period analysed. When making an attempt at formulating the research concept, an assumption was made that one of the advantages of interlocking from the point of view of transaction risk mitigation is the access to information. As a result, it was necessary to focus in the analysis on selected sociometric measures that are important for evaluating the values in the information flow network, such as: closeness centrality, meaning the position of a node within a network, and eigenvector centrality, which determines the capability to propagate information through connection with nodes characterized by a high number of relations.

2. Risk in Enterprise Acquisition Procedures

A. Behr and F. Heid [6] underline that in the long term the majority of acquisitions does not lead to an increase in value of the companies merged. Unknown and unquantified risks may constitute a serious hazard to any transaction. Underestimating them means, above all else, higher transaction costs. J.C. Hooke [7] mentions the three fundamental types of risk faced by enterprises that carry out acquisitions: the risk of operations – the enterprise acquired

does not function as well as expected after integration, mainly because the buyer has limited knowledge on functioning of the company acquired, the risk of overpaying – a high acquisition price eliminates the chance of obtaining a satisfactory return on investment, and the financial risk – when the acquisition was financed by incurring a loan and it becomes impossible to finance own operations and handle the debt at the same time.

3. Significance of Interlocking Directorate in Acquisition Procedures

Interlocking directorate may have a direct character when the same person serves in management or supervisory boards of other companies, or indirect character when two related persons serve in management boards of different companies [8]. The object of analysis within the framework of this chapter is the interorganizational interlocking, which, as noted by D. Palmer [9], enables mainly access to and exchange of information, which allows every party to formulate and apply efficiently an appropriate competition strategy. For the purposes of deliberations regarding the significance of interlocking directorate as a risk mitigating factor in acquisition procedures it is also possible to adopt the views developed within the framework of resource dependence theory, which assumes that the management and supervisory boards control the external environment and perform a certain scanning of strategies of other companies [10] through people serving in management or supervisory boards of other enterprises [11]. Cukurova [12] conducted research among American listed companies and found that, in comparison to other companies, the companies related to the acquiring company through interlocking directorate are more likely to be acquired. Studying the impact of relationship network on the acquisition decisions made was the object of analysis performed by H. Yang [13] and W. Vanhaverbeke [13]. As a result of his research, Q. Wu [14] proves the hypothesis that relations create communication channels and, in consequence, enable acquiring a company on more advantageous terms, while other research demonstrates that they enable performance of hostile takeovers [15], [16]. The companies located at the centre of the interorganizational network acted more often in the role of the acquiring company [17]. Ye Cai and M. Sevilir [18] underline that buyers functioning in a network of relations incur markedly lower costs related to investment counselling. The research conducted analyses the significance of interlocking for solving the problem of information asymmetry in acquisition procedures, which is visible mainly at the pre-transaction stage [19], [12], [20]. The presence of relations in supervisory boards results in the possibility of mutual influence between companies connected through relations. R. Schnlau and P. Singh [21] emphasize the link between the personal relations between transaction partners and the course of post-transaction integration process.

4. Research Methodology

The object of research were the relations taking place through interlocking directorate between the companies listed at the Warsaw Stock Exchange and New Connect that participated in acquisition procedures carried out during years 2008-2014. The research was conducted with the use of the Euromoney Institutional Investor Company (EMIS) Deal Watch database, from which the transactions meeting the criteria adopted were selected. Data on management and supervisory board members were acquired from the INOFERITI database.

The research was conducted using the Social Network Analysis (SNA) method and encompassed 525 companies. In order to visualise the social networks, the Gephi 0.9.1 software was used. The research was conducted using the Social Network Analysis (SNA) method and encompassed 525 companies. The structure of enterprises studies is presented in Fig. 1.

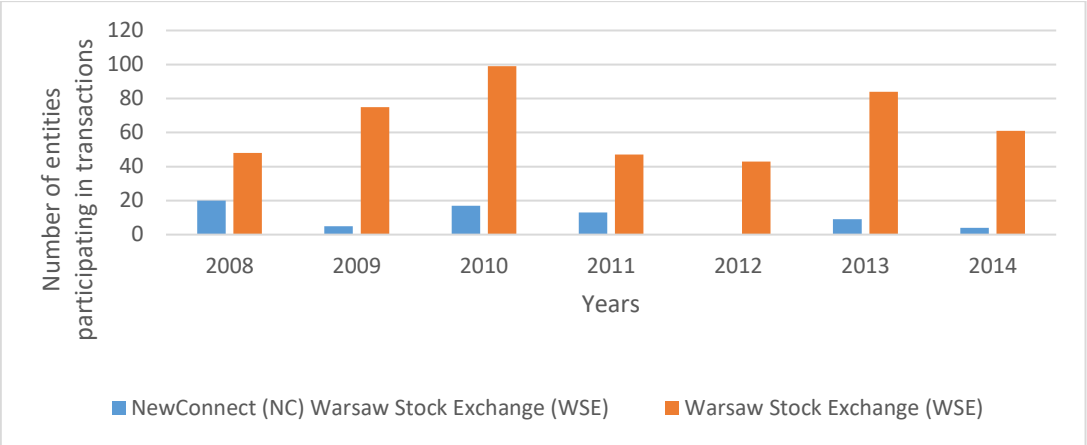

Fig. 1. The structure of examined companies participating in acquisition transactions
Source: own elaboration on the basis of [22]

5. Results

The analysis conducted showed than 78 companies (14,9%) that took part in acquisition transactions were related via interlocking and thus became the object of further analyses. The degree of networking between the companies participating in the transactions is, therefore, low the analysis of the network of relations between people and companies being parties to a purchase-sale relationship during the period studied showed that there is no dominant extensive network. Instead, it consists of several dozen sub-systems, which, in turn, consist of dyads (bipolar systems) and triads (tripolar systems) of dominant nodes, around which there are satellites – other nodes (usually people) related to them, playing a less important part in the whole system. The network relations identified in the transactions analysed are of sectoral nature and the most distinct relations are present in the chemical and financial sectors. The research attempted, among others, at finding the answer to the question whether the personal relations were visible prior to the transaction. It can be assumed that such situation may result in access to important information that may be related to making the decision of conducting the acquisition transaction. 78 operations were found where a personal relation was present prior to the transaction. These relations were continued in case of 56 operations already after completing the acquisition transaction (Table 1).

Table 1. Number of personal relations before and after the transaction

Number of transactions where personal relations were found between management boards of entities participating in the transaction		Period of presence of personal relations:		TOTAL
		Before the transaction	After the transaction	
Nature of personal	Object of transaction – buyer	31	28	59
	Object of transaction – seller	47	28	75
TOTAL		78	56	

Source: own research

Another important part of the research was establishing the strength of relations. The analysis shows how long before and after the transaction the interlocking directorate relationship between the companies existed. For the purposes of the research discussed it was assumed that a short-term relation is one that last for less than a year. Any relations lasting for more than one year were considered long-term relations. The analysis showed that long-term relations are dominant (64%). It is of particular importance for building relations based on

trust [22], which may have actual economic value and impact on the post-transaction strategy adopted by personally-related companies-transaction partners. The sociometric measures important for the purposes of evaluating value in an information flow network, analysed within the framework of this elaboration, are the closeness centrality and eigenvector centrality. The first of these measures means the position of a node within the network and indicates the possibilities of inflow of information provided along short paths, which is significant from the point of view of information provision time. The second of the sociometric measures analysed specified the information transmission capacity through the connection with nodes characterized by a high number of relations. In business networks, an enterprise with a high eigenvector value has relations with nodes (other entities) that perform an important function within the network, e.g., they are in possession of key resources, are a source of innovations, or have a high market share. The measures analysed adopt in each case the values within the <0-1> range.

When it comes to the relation closeness centrality measure, the values approximating zero means a low closeness standing of a given node within the network. The value of 1 means that a given node is located the closest to all the network nodes. A high closeness centrality standing means that an enterprise is able to exchange information quickly with the use of a lower number of proxies and, in consequences, with lower message distortion probability.

Table 3. Selected sociometric measures describing the network of relations between the companies participating in acquisition transactions

Selected sociometric measures describing the network	Mean value	minimum	maximum
Closeness centrality	0.012	0	0.17
Eigenvector centrality	0.016	0	0.332

Source: own research

The analysis of paths between pairs of enterprises within the network (closeness centrality) showed a low level of centrality, which may mean limited access to information sent by other nodes within the network. The other measure analysed also achieves a low value, indicating a low level of relations between companies in general and the companies that take the central positions within the network. Such a situation may lead to limited access to information resources within the network [22].

6. Conclusions

The studies of literature that were conducted showed that relations through interlocking directorate constitute a significant factor having impact to access to information that is of key importance from the point of view of making investment decisions. Interlocking is treated, therefore, as a risk mitigation instrument at every stage of the acquisition procedure.

However, this aspect has not been subjected to appropriate empirical analysis in Poland so far. The research conducted clearly indicates the low level of networking of companies participating in acquisition transactions executed on the Polish capital market. The relations identified are of sectoral nature. In a situation when the relationships are already present, they are of long-term nature and are visible both before and after the transaction. The network measure analysis conducted showed a low closeness centrality level. If we assumed that the main objective of interlocking is quick access to information of key importance, then, in order to achieve that objective, it would be necessary to increase the degree of a given relation by employing people from enterprises that occupy central positions in the network of relations as members of management or supervisory boards.

REFERENCES

[1] Ryzyka współczesnego rynku fuzji i przejęć. Raport z badania Crowe Harwath i FERF.2017.
[2] Mizruchi, M., (1996). What do interlocks do? An Analysis, Critique, and Assessment of Research on Interlocking Directorates. Annual Sociological Review 22, pp. 271-298.
[3] Sanchez L.P.-C., Barroso-Castro C., (2015). It is useful to consider the interlocks according to the type of board member (executive or non-executive) who possesses them? Their effect on firm performance. Revista Europea de Direccion Economia de la Empresa, 24, pp. 130-137.
[4] Phan, P.H., Wong, P.K., Wang, C.K. (2002). Antecedents to Entrepreneurship among University Students in Singapore: Beliefs, Attitudes and Background. Journal of Enterprising Culture 10(2), pp. 151-174.
[5] Shropshire C., (2010). Scope of Director's Interlocking in the Processes of Companies' Acquisitions. Academy of Management Review 35 (2), pp. 246-264.
[6] Behr A., Heid F., (2011). The Success of Bank Mergers Revisited: An Assessment Based on a Matching Strategy. Journal of Empirical Finance January 18, pp. 117-135.
[7] Hooke J., C. (2002). Fuzje i przejęcia. Jak skutecznie prowadzić transakcje. K.E. Liber, Warszawa.
[8] Nawfal W., (2011). Interlocking Directors: Impact on Canadian Merger and Acquisition Outcomes. Concordia University. John Molson School of Business.
[9] Palmer, D., (1983). Broken Ties: Interlocking Directorates and Intercorporate Coordination. Administrative Science Quarterly 28 (1), pp. 40-55.
[10] Yang H., Lin Z., Peng M., (2011). Behind acquisitions of alliance partners: exploratory learning and network embeddedness. Academy of Management Journal 54, pp. 1069-1080.
[11] Sleptsov A., Anand J., Vasudeva G., (2013). Relational configurations with information intermediaries: the effect of firm-investment bank ties on expected acquisition performance. Strategic Management Journal 34, pp. 957-977.
[12] Cukurova S. (2012). Interlocking Directors and Target Selection in Mergers and Acquisitions. www.igier.unibocconi.it/ files/Cukurova.pdf, access date: 24.08.2016.
[13] Vanhaverbeke W., Duysters G., Noorderhaven N., (2009). External technology sourcing through alliances or acquisitions: an analysis of the application-specific integrated circuits industry. Organization Science 13, pp. 714-733.
[14] Wu Q. (2011). Information Conduit or Agency Cost: Top Management and Director Interlock between Target and Acquirer. https://repository.asu.edu/attachments/93828/ content/tmp/package-KRFHD4/Wu_asu_0010E_11910. pdf, pp. 28-57, access date: 23.08.2018.
[15] Barber, B., Palmer D.A., Wallance J., (1995). Determinants of conglomerate and predatory acquisitions: Evidence from the 1960s. Journal of Corporate Finance 1(3), pp. 283-318.
[16] Cremers, K.J., Nair V., B., Kose J., (2005). Takeovers and the cross-section of returns. Review of Financial Studies 22(4), pp. 1409-1445.
[17] Sleptsov, A., Anand J., Vasudeva G., (2013). Relational configurations with information intermediaries: the effect of firm-investment bank ties on expected acquisition performance. Strategic Management Journal 34, pp. 957-977.
[18] Cai Y., Sevilir M. (2012). Board Connections and M&A Transactions. Journal of Financial Economics 103(2), pp. 327-349.
[19] Uzzi, B., (1997). Social structure and competition in interfirm networks: the paradox of embeddedness. Administrative Science Quarterly 42, pp. 35-67.
[20] Stankiewicz-Mróz, A. (2017). Zakres interlockingu dyrektorskiego w procesach przejęć przedsiębiorstw. Przegląd Organizacji 3, pp. 35-40.
[21] Schonlau, R., Singh, P. (2009). Board Networks and Merger Performance. Working Paper, University of Washington.
[22] Euromoney Institutional Investor Company (2016). Deal Watch.
[23] Trąpczyński P., Zaks O., Polowczyk J., (2018). The Effect of Trust on Acquisition Success: The Case of Israeli Start-Up M&A. Sustainability-10-02499%20(2).pdf access date: 21.12.2018.
[24] Klimas. P., (2014). Zastosowanie analizy sieciowej w badaniach kapitału społecznego, [in:] Sankowska A., Santarek K., (red.), Społeczne aspekty zarządzania. Wybrane problemy. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, pp. 22-38.

Financial Risk and its Consequences as Inherent Element of Public-Private Partnership Projects

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1. Introduction

One of examples of innovative management is public and private partnership idea which is seen as a long-term cooperation between organizations and institutions from public and private sectors. According to the law [8] the main idea is to act together and realize common projects based on risks and tasks that are a part of it. The most important element influencing effectiveness of the PPP concept is division of tasks and what is strictly connected – risks.

According to the provisions of the Act on Public-Private Partnerships [8] the subject of PPP is the joint implementation of a project based on the division of tasks and risks between a public entity and a private partner. The division of tasks and risks is also one of the two obligatory criteria of choosing the most favourable offer [ibid.]. Moreover, the requirement of determining the category of risks related to the implementation of PPP projects and the principles of their evaluation reflect the requirements specified in the Eurostat regulation [2].

The risks related to any activity, especially a long-term one, is multidimensional and diversified. Projects implemented on a PPP basis show a different level of risk than projects implemented, e.g., in the form of privatisation. Such risk has a direct influence on projects since it is presented by the private party as a function of financial conditions. The most important obligation of the public sector is to ensure the value of the project in relation to the funds involved in a PPP. An in-depth analysis is necessary long before the implementation of a project as it facilitates the elimination of financially nonviable projects and the removal of possible difficulties in their financing [1]. There are various methods of determining the value in relation to the money involved – their use should be carefully analysed according to particular needs. A PPP should be applied only when a project of this kind provides more value in relation to the money involved in a PPP than in case of traditional methods. The key issue for a PPP is the division of risk and, at earlier stages, its evaluation. A private partner is usually ready to take the risk of project implementation if the risk can be predicted. At the same time, the higher the risk, the higher profit may be obtained by the company. Undoubtedly, risk management is one of the most difficult areas in such projects [6].

2. Types of Risk within PPP Agreements

PPP projects and their evaluation have to consider elements of risk, defined as any factor, event or influence which endangers the finalization of the project with regard to time, cost or quality. Some types of risk within PPP include [5]:

- commercial risk, e.g., related to exceeding the expected investment outlay, failing to meet the agreed parameters or standards and accidents,

- market and operational risk (e.g., increase in prices, decrease in demand for services, technological development),
- political risk (related to a given country), force majeure (floods and other natural disasters), changes in law or customs regulations, failure to obtain necessary permits, etc.
- financial risks – changes in interest rates,
- exchange rate risks.

PPP projects are attractive for the public sector since they provide opportunities for allocation and financing risks related to project implementation. Any payments from the public sector can be commenced only after the project is properly implemented by the investor, which facilitates better management of public money. Regardless of detailed contractual provisions determining the principles of cooperation, the essence of such agreements (equally based on private and public law) is the division of involvement in the investment and the related risks and responsibilities of the partners. The principles of cooperation should determine the methods of risk compensation for each partner, allowing for the participation in the profits or the mutual settlements between the parties. In a properly functioning PPP, the parties should complement each other in areas of their expertise, which calls for the adjustment of contractual provisions to particular tasks. Seemingly, some risks can be transferred from the public partner to the private one, however, full avoidance of risks by the public partner can be extremely expensive, unprofitable or even impossible. The private partner will always demand proportional compensation or profits for the risk assumed in the project.

Risk, defined as financial consequences, should be reasonably transferred to the party which can take it in the most cost-efficient way, not just for the sake of transference. The effective allocation of risk has a direct financial influence on the project as it results in the decrease in the overall project costs (increase in VfM compared to traditional projects). The transfer of risk to the private sector directly influences also the overall cost of the project for the public sector as all the risk is related to the price premium. Consequently, it is necessary to transfer risk effectively, by means of [9]:

- decrease in the long-term project costs by transfer of risk to the most efficient party in terms of risk-taking,
- provision of incentives for the implementing party to meet project deadlines, according to the required norms and within the budget,
- improvement of the quality of services and increase in the profits by more effective performance,
- ensuring a more coherent and predictable cost profile.

Profit-related risk is the most basic factor in PPP projects. Profit flow is generally determined by two factors: levels of utilization and tariffs. The availability of credible historical information documenting the demand and price flexibility levels is different across different sectors.

Risk is inextricably connected to establishing a partnership with an unknown partner, which is highlighted by the process of public procurement, making it difficult to prolong the period of negotiations, important for increased familiarity and mutual trust. The main risk consists in the private party not being sufficiently competent or able to provide services according to the initial specification. All public institutions share the concern that by offering a PPP agreement, a private company might gain a monopoly, unfair advantage over competitors or unfair access to the market, which can influence both project costs and the ability to introduce innovation into services [9].

An inseparable element of a PPP project is indebtedness, which may threaten its cost effectiveness (e.g., fluctuations of exchange rates). Such risk can be intensified if governments require concession holders to obtain a part of funds from foreign sources.

Currency risk is highest when weak currencies are invested in a project in developing economies of increased risk.

Risk can also occur in relation to the social acceptance of a given project. Infrastructural projects can raise public outcry in local communities. Careful investors before deciding about an investment have to prepare precise estimates of their projects and the public attitude towards them.

The main criterion of many detailed PPP models, i.e. the division of risk (the scope of responsibility of a private partner) can vary: DBO – design, build, operate; BOO – build, own, operate; BOR – build, operate, renew concession; BOT – build, operate, transfer; DBFO – design, build, finance, operate; DBFM – design, build, finance, maintain.

Risk allocation should reflect the specific qualities of a project and the powers of each party. However, the cost of risk transfer should not be ignored as in a given PPP the achievement of VfM often depends on the level and cost of risks transferred to the private sector. An example of a good practice is the examination of the scope of risk transfer (and its consequences) in other related agreements.

The above-mentioned types of risk frequently occur in the implementation of PPP agreements and can have a huge influence on the success of a project. Regulatory risk is the highest in countries where new and unverified laws regulate PPP projects and where experience in financing projects is relatively low.

Although risk cannot burden only one party, local governments want to transfer all the risks to the private investor, offering little instead. This results in many failed tenders in which no bidders submitted their offers. Even though arrangements are time-consuming, the potential benefits from the partnership outweigh the disadvantages, if the whole process is implemented professionally, thoughtfully and with proper preparation [10].

3. Research Hypothesis and Methodology

The research included 61 units of self-governments in the area of the Podkarpackie Voivodeship. 42 administrative units which returned the questionnaires were analysed in the research (69%out of all the submitted questionnaires). The units include 31 communal self-governments (gmina), 6 District Starosties (poviat) and the Voivodeship Office and Marshall's Office of the Podkarpackie Voivodeship. Self-governmental cultural institutions were also included in the scope of the research. Because of the highest level of attractiveness for tourists and the best tourist infrastructure, the following districts (poviats) were analysed: bieszczadzki, leski, sanocki, krośnieński, jasielski, rzeszowski and przemyski. The research, consisting of a questionnaire and an interview, was conducted between January 2018 and April 2018.The interview was conducted among the employees who were familiar with the PPP concept and among the units which planned to utilize the same form of public project financing(except for self-governmental cultural institutions where the PPP concept was unknown).

3.1. Verification of Hypothesis and Discussion of Results

Examples of risks can be given based on the provisions of the Regulation of the Minister of Economy of the 21st of June 2006 on the risks related to the implementation of projects within public-private partnership, which is no longer in force [Rozporządzenie, 2006]. Due to technical and time constraints, the respondents were presented with just a few types of risk for

evaluation and the chapter deals only with the most important ones (according to the present author). The respondents were also requested to indicate who should assume a particular type of risk:

- private sector (PR),
- public sector (PU),
- risk divided between both sectors (PR/PU).

Any considerations related to the division of risk in the tourist industry are hypothetical since they depend on the type of a particular project. One question referred to how the respondents evaluate the particular types of PPP risk in the tourist industry. The respondents' answers show their approach to the complicated aspect of the division of risk which determines the structure of PPP agreements and expenses incurred by both parties.

Table 1. Risk of delay in the finalization of construction works

Risk of the increase in construction costs						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Low (2)	0	0.00%	0	0.00%	3	15.00%
Don't know (3)	1	11.11%	0	0.00%	2	10.00%
High (4)	6	66.67%	1	100.00%	10	50.00%
Very high (5)	2	22.22%	0	0.00%	5	25.00%
Weighted average	**3.45**		**4.0**		**3.85**	

Source: own elaboration

As regards the risk of delay in the finalization of construction works (Table 1), the research shows that for almost half of the respondents (17/41) this type of risk is high and should be assumed by the private sector (weighted average 3,94), which might result from the fact that the research was conducted among representatives of the public sector who are afraid to take any type of risk, also in cooperation with a private partner. More than 10% of the respondents (4/41) think that the risk is low. Overall, the respondents' answers show that the high risk should be assumed by both the public and the private sector (weighted average 3,63).

Table 2. Risk of the increase in construction costs

Risk of the increase in construction costs						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Low (2)	0	0.00%	0	0.00%	3	15.00%
Don't know (3)	1	11.11%	0	0.00%	2	10.00%
High (4)	6	66.67%	1	100.00%	10	50.00%
Very high (5)	2	22.22%	0	0.00%	5	25.00%
Weighted average	**3.45**		**4.0**		**3.85**	

Source: own elaboration

The need for the division of risk of increased costs of construction is especially seen in case of high risk and, consequently, high responsibility in the face of possible difficulties in the implementation of a project. 6 out of 17 respondents claim that such risk is high and should be assumed only by the private partner. The research shows that half of the respondents (17/34) think that the risk is high (weighted average 4,0). 1/6 of the respondents did not express their opinion about the relevance of the risk of increased constructions costs, which might result from insufficient knowledge about this issue. Overall, the respondents were indecisive who should assume this type of risk (weighted average 3,45).

Table 3. Risk of occurrence of new market trends

Risk of occurrence of new market trends						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Low (2)	2	25.00%	5	55.56%	4	28.57%
Don't know (3)	2	25.00%	1	11.11%	5	35.71%
High (4)	1	12.50%	3	33.33%	5	35.71%
Very high (5)	3	37.50%	0	0.00%	0	0.00%
Weighted average	**3.37**		**2.78**		**3.07**	

Source: own elaboration

The research shows that the risk of occurrence of new market trends was considered to be both low and high (Table 3). Most respondents (11/41) consider the risk to be low. 8 respondents do not know how to evaluate it, while only 3 people consider it to be high and think that the risk should be assumed by the private investor. Table 3 shows that, regardless of risk, in most cases the respondents think that it is the private sector which should take the risk of market changes, which might be corroborated by the presumption that the private sector should respond better to changes of market trends since its operation is usually heavily dependent on them.

Table 4. Risk of new technological requirements

Risk of new technological requirements						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Low (2)	1	20.00%	3	33.33%	5	33.33%
Don't know (3)	1	20.00%	2	22.22%	3	20.00%
High (4)	3	60.00%	2	22.22%	6	40.00%
Very high (5)	0	0.00%	2	22.22%	1	6.67%
Weighted average	**3.4**		**3.33**		**3.2**	

Source: own elaboration

11/34 respondents think that the risk of new technological requirements is high, while a similar number of people (9/34) consider it to be low. In the opinion of only 3 people the risk is very high. The responsibility for the risk was attributed in most cases to both sectors, especially when the risk was considered to be high (40% respondents). 60% of people who think that the risk is high claim that it should be assumed by the private sector. Also, the public sector was burdened with the responsibility for the risk of new technological requirement, possibly since this sector lays down legal regulations, sets the norms and imposes technological requirements.

Table 5. Risk related to the competition

Risk related to the competition						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Low (2)	0	0.00%	4	66.67%	2	13.33%
Don't know (3)	0	0.00%	0	0,.00%	5	33.33%
High (4)	7	77.78%	2	33.33%	8	53.33%
Very high (5)	2	22.22%	0	0.00%	0	0.00%
Weighted average	**4.22**		**2.67**		**3.4**	

Source: own elaboration

The research shows that the risk related to the emergence of competition was considered to be high. At the same time, respondents think that responsibility for it should be assumed by both the private and public sector (almost 54%). Risk seen as low was deemed to be assumed by the public sector (over 66%), while risk deemed to be high – the private sector (over 22%) or jointly by both sectors (8/15 answers). In general, the respondents recognized the relevance of the risk related to the emergence of competition on the market.

Table 6. Risk of resignation from the implementation of the project

Risk of resignation from the implementation of the project						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Very low (1)	0	0.00%	1	20.00%	0	0.00%
Low (2)	2	28.57%	3	60.00%	10	55.56%
Don't know (3)	0	0.00%	0	0.00%	3	16.67%
High (4)	5	71.43%	1	20.00%	2	11.11%
Very high (5)	0	0.00%	0	0.00%	3	16.67%
Weighted average	**3.43**		**2.2**		**2.89**	

Source: own elaboration

Understandably, since the partners are bound by the agreement which does not allow them to resign without proper justification, almost half of the respondents (15/34) considered the risk of resignation to be low. What is more, if one party to the agreement resigns, it is the resigning party which covers all the costs and losses. The risk of resignation, if it is low, should be assumed by both public and private sectors (55%). If the risk is on a high level, most respondents think that it is the private partner which should assume the responsibility for possible costs, while only 1 respondent evaluated this type of risk as low and thinks that the public entity should be burdened with such responsibility.

Table 7. Risk of changes in prices

Risk of changes in prices						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Very low (1)	0	0.00%	0	0.00%	0	0.00%
Low (2)	1	9.09%	1	50.00%	6	37.50%
Don't know (3)	3	27.27%	0	0.00%	2	12.50%
High (4)	7	63.64%	1	50.00%	8	50.00%
Very high (5)	0	0.00%	0	0.00%	0	0.00%
Weighted average	**3.54**		**3.0**		**3.12**	

Source: own elaboration

As regards the risk of changes in prices, almost half of the respondents (16/34) considered the risk to be high, 8 out of 34 people think that it is low, while 5 respondents answered "don't know". Lack of data concerning this question reflects the insufficient level of knowledge about this issue, which results in the unwillingness to express any opinion. Many respondents think that this type of risk is rather high (weighted average 3,54) and would like to burden both sectors with such responsibility (50%). However, more respondents suggested that if the risk is high, it is the private sector which should assume the responsibility (almost 64%). This might be explained by the fear of the public sector to undertake any risk in cooperation with a private partner and, generally, lack of trust placed by the public sector in private partners.

Table 8. Risk of the increase in operational costs

Risk of the increase in operational costs						
Type of risk	**PR**	**%**	**PU**	**%**	**PR/PU**	**%**
Very low (1)	0	0.00%	0	0.00%	0	0.00%
Low (2)	0	0.00%	1	12.50%	3	20.00%
Don't know (3)	2	25.00%	0	0.00%	2	13.33%
High (4)	6	75.00%	5	62.50%	10	66.67%
Very high (5)	0	0.00%	1	12.50%	0	0.00%
Weighted average	**3.75**		**3.87**		**3.47**	

Source: own elaboration

Understandably, this type of risk is high for the vast majority of the respondents since PPP projects are usually long-term and, as a result, it is highly probable that the operational costs of a given investment will increase. Only 4 people think that it is low, while 1 person (12% of all respondents) considers it to be very high. The responsibility for this type of risk should be assumed by both partners from both sectors (according to 66% of the respondents) or only the private partner (75%). People who considered this risk to be low also claim that both sectors should be burdened with this responsibility (22%).

4. Conclusions

The type of risks related to the implementation of PPP projects, the division of risks between the public entity and the private partner and their influence on the level of public debt and the public budget deficit play an important role in the PPP concept [11]. It has to be pointed out that a proper division of risks related to a jointly implemented project is the key element of the partnership between the public entity and the private project, which not only determines the form of cooperation but also initially decides about the very reason for the inception of the cooperation [4]. According to the definition, public-private partnership is based on the financial cooperation of private capital with other parties to the agreement, where the optimal division of risks takes place, i.e., the entity which can handle a certain type of risk best is burdened with this obligation [3].

To sum up, in case of agreements implemented on a PPP basis, the most significant risks are as follows: the delay in construction works, the increase in construction costs, cyclicality of demand and changes in legal regulations. According to the respondents, it is the private sector which should assume full risk of the above-mentioned types, except for changes in legal regulations, the risk for which should be assumed by the public entities enacting such laws. The respondents would like to have foreign partners and companies from proper sectors as partners in the implementation of PPP projects, while cooperation with developers and social organizations was met with scepticism. Mutual trust (still missing) and the reputation of a potential investor were seen as factors which influence the development of cooperation between sectors.

REFERENCES

[1] Brzozowska K., (2010), Partnerstwo publiczno-prywatne w Europie. Cele, uwarunkowania, efekty, Wydawnictwa Fachowe CeDeWu.Pl, Warszawa.

[2] Cieślik Z., (2014), Partnerstwo publiczno-prywatne. Publicznoprawna problematyka kontraktowych form działania administracji europejskiej, Wydawnictwo Sejmowe, Warszawa.

[3] Kania M., (2014), Zamówienia publiczne. Partnerstwo publiczno-prywatne. Koncesje na roboty budowlane lub usługi w prawie polskim. Instytucje prawne realizacji przedsięwzięć publicznych, Difin, Warszawa.
[4] Korbus B. P., Strawiński M., (2009), Partnerstwo publiczno-prywatne. Nowa forma realizacji zadań publicznych, Monografie, Lexis Nexis, Warszawa.
[5] Lintz R. S., (1999), An Overview of Alternative Institutional Arrangements for the Delivery of Urban Services: Public/Private Partnerships. Prepared for: Local Government Partnership Program, projekt USAID/Chemonics International.
[6] Moszoro M., (2010), Partners two publiczno-prywatne w sferze użyteczności publicznej, Oficyna Wolters Kluwer business, Warszawa.
[7] Rozporządzenie Ministra Gospodarki z dnia 21 czerwca 2006 roku w sprawie ryzyk związanych z realizacja przedsięwzięć w ramach partnerstwa publiczno-prywatnego. Dz. U. z 2006 r. Nr 125, poz. 869.
[8] Ustawa z dnia 19 grudnia 2008 roku o partnerstwie publiczno-prywatnym. Dz.U. 2009 Nr 19 poz. 100.
[9] Wytyczne dotyczące udanego partnerstwa publiczno-prywatnego, Bruksela 2003.
[10] Zysnarski J., (2003), Partnerstwo publiczno-prywatne: teoria i praktyka, ODiDK, Gdańsk.
[11] Żegleń P., (2014), Partnerstwo publiczno-prywatne a konkurencyjność i rozwój obszarów recepcji turystycznej w Polsce, Wydawnictwo Uniwersytetu Rzeszowskiego, Rzeszów.

Financial Aspects of Project Supply Chain

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1. Introduction

In Polish and foreign journals, the way logistics relates to broadly understood finance is more and more emphasized and characterized. This is due to the fact that the strong impact of logistics processes on the level of financial result [22] is emphasized, because it is shaped by the costs and effects of two types of flows (products and information) within a company.

These relationships can be considered important also because, in the case of an enterprise's participation in the supply chain, the management of financial flows no longer applies to it, but also to the entire chain. In standard literature focused on this subject, some research areas are distinguished [12], related to, for example, capital management. However, despite extensive analyses related to the presented matter, a cognitive gap was identified on the basis of literature research on the relationship between finance and logistics, the filling of which is the purpose of this work. In journalism, the coherent characterization of the financial aspects of the project supply chain was not found, because it focuses more on the analysis of financial flows within supply chains [12] or coordination under uncertainty [8].

Characterizing these aspects may seem useful for many reasons, because it will allow enterprises to manage risk more effectively during the production and distribution of unique products, while pointing to the directions of scientific research. With this in mind, this chapter also attempts to characterize financial risk management within the project supply chain, which was also not found in the literature. The methods used in this chapter include both literature analysis and scientific reflection.

2. Introduction to Subject of Project Supply Chain

The project supply chain does not seem to be close to the global supply chain, but in an economic sense it could be considered a logistics project. In the literature, it is the classic form of the supply chain that is most often analysed, so this one should be characterized first.

However, it should be noted that supply chain management is one of the most important elements of logistics [5], therefore the above introductory remark is necessary as it emphasizes the importance of the issue being addressed. The classic supply chain, if you can define it as such, can be defined as a product life cycle process consisting of physical, informational and financial flows, accompanied by knowledge, designed to meet end-user requirements using physical products and services from different suppliers [2]. The supply chain defined in this way covers the network of enterprises which, as part of the above process, convert basic raw materials into finished product. Each of those enterprises is therefore responsible only for part of this (usually) complex process, which consequently raises, in conjunction with subsequent phases, the value of the product. Within this cycle, contributions in the form of materials and information are transformed into results, which are goods and services. The supply chain should be based, according to the definition presented,

on long-term relationships that are based on the partners' willingness to achieve even diversified corporate goals, which are primarily to be the goals of this chain. This interplay is widely understood as synergy effect, which as a result forms the basis for achieving a competitive advantage.

Project supply chain is a concept that has features in common with the global supply chain, mentioned above, meaning a supply chain, understood in accordance with the presented definition frameworks, but going beyond the borders of a single state, consisting of large enterprises, and organized across many countries with production plants located abroad, and suppliers also based abroad [4]. The origin of global supply chains, as can be assumed by observing global economic trends, is globalization, as enterprises wanting to achieve a competitive advantage involve other competent supplier companies in various parts of the world in the manufacturing process. Such a way of conducting business is connected with the fact that the distance between the most important enterprise in a given supply chain and the remaining links is growing. The literature emphasizes that these major enterprises are large and well-known entities, visible to consumers, whose results are meticulously analysed by their shareholders [7]. In such a chain, suppliers achieve benefits in the form of knowledge and technology transfer from buyers located all over the world, which facilitates the adoption of "good practices" [7]. Difficulties in managing such a chain may derive from the standards on which the particular supply chain is based. This is due to the fact that these standards may only apply to a small patch of a large chain, not improving organizational efficiency. The above-mentioned, and at the same time the most important features of the global supply chain, make it somewhat similar to the project supply chain. This concept, after decomposing into the first part, suggests that it should be analysed from an angle [1]: project – as a factor creating an opportunity in business, supply chain – as an element increasing competitiveness, competitiveness – resulting from supply chain management and logistics for adaptation to demand and supply. Projects are an issue widely discussed in literature, especially by their features, which include, above all, uniqueness and complexity [18]. This means that they are always temporary, which is why they are usually defined as a temporary undertaking implemented to create a unique product or service [13]. Thus, projects always have a beginning and an end, while their result is somewhat unique, they can also be implemented in various areas of an organization, they can also vary in size or number of people involved. Due to their nature, they can be managed as classically defined [13] as management (that) involves the application of knowledge, skills, tools and techniques to act to meet or even exceed the needs and expectations of interested project stakeholders. The project supply chain seems to be a complex and ambiguous concept, which is true in a sense, because it combines these project features with supply chains, but it must be added, although it is not the most important topic that cannot be confused with logistics projects, which is not underlined in the subject literature. From an economic perspective, a project supply chain can be considered as specific logistics projects, which is not really true, because the latter is defined as one-off, limited time and budget projects whose implementation is to improve the efficiency and effectiveness of product flows. Their implementation should also improve the flow of information both in companies, as well as in supply chains and even in spatial systems [23]. The literature on the subject confirms the above definition, as it defines logistics projects as undertakings which, being isolated by time, cost and organization, have the task of implementing an activity that optimizes the logistics process [6]. In other words, logistics projects provide a specific product or service, taking into account the limitations typical for projects. They can therefore be the activity of economic entities, including companies that together form a supply chain, which is focused on the change within the logistics process, which will end up in a unique result. The above suggests that a significant modification of the logistics process can be treated as such type of a project. In the literature on the subject it is very difficult to find the

most appropriate definition of project supply chain, especially as attention has not been paid to the idea of building a supply chain for projects until recently in 2000 [21]. In the well-known literature there are no exact and agreed definition and details presented. One can also find a definition according to which the project supply chain is a capital venture implemented within Supply Chain Management – SCM [14]. Despite this, the 2007 definition seems to be the most correct one, according to which the project supply chain can be described as a global network used to implement the project for the final customer starting from raw materials, using information flow and physical distribution [10], which is moreover a complex creation, because it consists of: the main contractor of the project, who is responsible for the project management, main clients and their own clients, suppliers and their own suppliers, subcontractors and their own subcontractors. The complicated organization created by the project supply chain is associated with a large cash flow in both home and foreign currencies, exposing individual links of such a structure to various risks. Since this organization is exposed to it, and the number of its members seems too high, it can even be said it is overwhelming – it is worth answering the question, for what reasons is it created at all? Well, a project supply chain emerges for building and delivering unique products, such as large aircraft [16], which makes it a global entity. At the same time, this feature makes it usually impossible to obtain historical data for analysis [8], but on the other hand, the discussed subject can be considered cognitively interesting.

3. Finance Relations with Project Supply Chain

First and foremost, the relationships between logistics and broadly understood finance are more and more often characterized and analysed in the literature, because the relationship between the logistics function in a company and the finance function, is important due to the strong impact of logistics processes on financial results [22] shaped by the costs and effects of two types of flows (products and information). In the literature, it is noted that logistics cannot "stagger" through a large cycle of planning, implementing and controlling financial flows [22], as these are areas related to finance and its management. These relationships are considered important because the management of financial flows no longer only affects an individual enterprise in the supply chain, but also the entire chain, and therefore appears to be related to the project supply chain. In this perspective, the classical literature defines four issues [12] that are part of joint logistics and finance: value management and its growth, management of working capital, demand management for capital and management of capital use. These issues assume that value management and its growth should play the most important role in the entire supply chain, as they apply to all links and effects of this chain, raising its value, thus also the value of enterprises. On the other hand, capital management and demand management for capital affect the growth of these values. It cannot, however, be disregarded here that there is an impact on companies' financial liquidity, the level of which can be increased by trading in inventories and other resources that are important from the point of view of logistics management. Thus, duality is becoming visible, because within logistics, capital is needed and used to achieve goals, thus increasing the value of the enterprise and, consequently, the entire chain, while finance analyses the sources of this capital and the effectiveness of use in terms of reducing its cost. Based on the analysis of the literature, it was stated that there are two approaches of managing financial flows within the supply chains and outside ones [12], i.e., Financial Chain Management (FCM) and Supply Chain Finance (SCF). The first one is defined as the management of the sum of all financial flows in and between enterprises [11], the second one includes actions optimizing the financing between cells in the supply chain to reduce the level of capital cost, taking into

account the entire chain [15]. However, FCM can be treated as an element of logistics management, while SCF as a component of financial management.

With respect to the project supply chain, the above-mentioned approaches to the financial aspects seem to be accurate, especially the imperative that financing of the implementation of a specific project should be as cheap as possible and cash turnover as fast as possible. Despite this, the focus should not be on raising capital, but primarily on financial risk, because the production, distribution and sale of unique and expensive products made of cost-intensive materials is very risky, putting bankruptcy risks not only on the main contractor but also on other participants of such a chain. In the literature, this observation cannot be found and neither can the characteristics of financial risk management within the project supply chain.

4. Financial Risk Management of Project Supply Chain

Overall financial risk management has the purpose to maximize the value of a project on the one hand and to avoid illiquidity on the other hand. So, financial risks are primary non-profitability and illiquidity. Financial risk management has to identify and analyse risks, to assess risks, to control risks using adequate measures and to review risk control. The typical phases of a project are conceptualization and initiation (1), planning (2), execution (3), performance control (4) and closure (5) (e.g., [17]). The typical stages of supply chain management, however, are the following: material planning (a), procurement (b), manufacturing (c), distribution (d), retail management (e), customer service (installation, repair, return) (f) [3]. So, while material planning (a) is part of planning (2) and all others (b-f) seem to be mainly part of execution (3), financial risk management seems to be especially a planning and execution issue and mainly related to logistical matters. Important aspects of financial risk management are related to the specific situation in each project, but business sources of risks of unprofitability or illiquidity may be found in the following stages (see e.g., [20]):

- Initiation: wrong concept of funding with inadequate partners and cost of capital.
- Planning: unclear requirements, missing time schedule, inaccurate planning of costs, resources, quality, cash flows and risks, poor selection of suppliers, disadvantageous financing agreements with suboptimal terms, no hedging of risks.
- Execution: late procurement, delayed deliveries, wrong quantities or prices, poor quality and complaints, missing resources, change requests, additional capital needs, no risk adjustments – on both supplier and customer side.
- Performance control: no or not suitable controlling system, no proper or late measurements.
- Closure: no timely termination of contracts, too many final services.

Beside these (microeconomic) business side risks which are partly influenceable, financial risks may stem from the (macroeconomic) market side, like changing price, interest rates, exchange rates, inflation and state interventions like taxes and duties. All these risks might result in increasing costs which are counterproductive to profitability and liquidity as well as delays which have effects on liquidity only.

While many of the mentioned risk sources are common to business in general, project supply chains are characterized by complexity, major financial resources and uniqueness. So, if the supply chain of a large project is interrupted or partly not functioning, the whole project and thus the whole product is in danger to be delayed, interrupted or to become simply unprofitable. Therefore, the financial risk or impact of the functioning of a supply chain is extremely important for the whole company.

Measures to control and overcome these risks with large financial impacts for project supply chains with respect to the involved parties could be characterized as follows:

- Financers: finding supply-orientated financers, agreeing flexible but well-defined contracts (including additional needs during the project), optimization of ratings and cost of capital using internal and external project funds.
- Suppliers: finding trust worthy suppliers, managing negotiations of contracts and purchase orders including payment terms, delivery, pricing, terms and conditions, nurturing relationships over all tiers [19].
- Internal processes and controls: implementation of exact financial planning, precise working capital management, control systems using liquidity and performance measures, forecasts and direct reporting lines as well as hedging macroeconomic risks or escalation clauses, missing parts management.
- Customers: frequent information and adjustments instead of unforeseeable complaints, exact contract specifications of products and services including delivery and payment arrangements.

Each of these measures is worth discussing in high detail. Financial departments' responsibilities in project supply chains are especially financial planning, flexible funding and hedging of external risks. Funding and hedging depend on the financial plans and theses depend on current and exact information. This information as a basis of an effective financial risk prevention needs a perfect team work with all other parties involved. Overall, financial risk management of project supply chains focuses on measures making costs and revenues as predictable as possible and consequently cash flows and liquidity management as exact as possible, using optimization of business processes and hedging for non-influenceable risks to avoid illiquidity and to maximize profitability.

5. Conclusions

Examining the relationships between project supply chain and finance is a relatively new approach and not often taken up in the subject literature. This is due to the fact that the literature focuses mainly on logistics aspects related to supply chains and not on financial aspects. An additional problem is that the project supply chain may be confused with logistics projects, which is also not emphasized in the literature. For this reason, this chapter attempts to characterize the financial aspects of the project supply chain, with particular emphasis on financial risk management. The study shows that such a chain is a complex entity consisting of many elements as it often engages large enterprises with the objective to implement a unique product. On the other hand, participation in such an organized supply chain exposes companies to many risks. Broadly understood, financial risk management within a project supply chain includes risk identification and analysis as well as its control and evaluation, which is why it takes the form of a classic process commonly presented in the literature.

However, it should be noted that this process will benefit all participants of such a chain only if the sources of the risk are accurately captured at individual stages of the project implementation, which is usually deep and broad and requires high financial outlays. In addition, while managing financial risk, management should focus on cash flow and maintain sufficiently high financial liquidity.

REFERENCES

[1] Asbjørnslett, B.E. (2003). Project supply chain management: From agile to lean. Norwegian University of Science and Technology, Trondheim, p. 5.
[2] Ayers, J.B. (2010). Supply Chain Project Management. A Structured Collaborative and Measurable Approaches. Second Edition, Taylor and Francis Group, London-New York, p. 17.
[3] Basu, R. (2016). Managing Project Supply Chains. Routledge, New York, p. 5.

[4] Caniato, F., Golini, R., Kalchschmidt, M. (2013). The effect of global supply chain configuration on the relationship between supply chain improvement programs and performance. The International Journal of Production Economics 143, pp. 285-293.
[5] Gołembska, E. (2010). Kompendium wiedzy o logistyce. PWN, Warszawa, p. 18.
[6] Kasperek, M., Szołtysek, J. (2009). Projekty logistyczne w outsourcingu usług logistycznych – cz. 2, Logistyka 1, pp. 55-57.
[7] Koberg, E., Longoni, A. (2019). A systematic review of sustainable supply chain management in global supply chains, Journal of Cleaner Production 207, pp. 1085-1095.
[8] Lian, D., Ke, H. (2018). Coordination in project supply chain based on uncertainty theory, Journal of Intelligent & Fuzzy Systems 35, p. 3758.
[9] Morris, P.W.G., Pinto, J.K. (2007). Project Technology, Supply Chain & Procurement Management, Wiley, New Jersey.
[10] Parrod, N., Thierry, C., Fargier, H., Cavaille, J. B. (2007). Cooperative subcontracting relationship within a project supply chain: A simulation approach. Simulation Modelling Practice and Theory 15, p. 139.
[11] Pfaff, D., Skiera, B., Weiss, J. (2004). Financial supply chain management, Bonn, pp. 21-67.
[12] Pfohl, H.-Chr., Hoffmann, E., Elbert, R. (2003). Management der "financially" Supply Chain. [in:] Finanzierung – eine neue Dimension der Logistik. Erich Schmidt. Berlin, pp. 21-95.
[13] PMBOK. (1996). A Guide to Project Management Body of Knowledge, Project Management Institute Standards Committee, PMI, USA, p. 4.
[14] Sobotka, A., Wałach, D. (2011). Koncepcja zastosowania metody zarządzania łańcuchem dostaw w procesie inwestycyjnym w budownictwie, Civil and Environmental Engineering/Budownictwo I Inżynieria Środowiska 2, p. 656.
[15] Stemmler, L., Seuring, S. (2003). Finanzwirtschaftliche Elemente in der Lieferkettensteuerung. Erste Überlegung zu einem Konzept des Supply Chain Finance, Logistik Management 5(4), pp. 27-37, 30.
[16] Tang, C.S., Zimmerman, J.D., Nelson, J.I. (2009). Managing New Product Development and Supply Chain Risks: The Boeing 787 Case, Supply Chain Forum, 10(2), pp. 74-86.
[17] Turner, R., Keegan, A. (2007). Managing technology: innovation, learning, and maturity, in: Morris, P.W.G., Pinto, J.K., p. 186.
[18] Vanhoucke, M. (2012). Project Management with Dynamic Scheduling, Berlin-Heidelberg: Springer-Verlag, p. 1.
[19] Venkataraman, R.R. (2007). Project Supply Chain Management: Optimizing value: the way we manage the total supply chain, in: Morris, P.W.G., Pinto, J.K. (2007), p. 128.
[20] Venkataraman, R.R., Pinto, J.K. (2008). Cost and value management in projects, Wiley, New Jersey, p. 127.
[21] Vrijhoef, R., Koskela, L. (2000). The four roles of supply chain management in construction, European Journal of Purchasing & Supply Management 6, p. 171.
[22] Witkowski, J. (1999). O związkach logistyki z finansami, marketingiem i produkcją w przedsiębiorstwie. Gospodarka Materiałowa i Logistyka 10(1999), p. 211.
[23] Witkowski, J., Rodawski, B. (2007). Pojęcie i typologia projektów logistycznych, Gospodarka materiałowa i logistyka 3(2007), pp. 3-4.

R&D Activities in Supply Chain and Industry Cartelization

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1. Introduction

As Huang [1] notices, numerous cartel cases involve downstream enterprises. Interestingly, cartels formed by downstream enterprises negatively affect not only consumers, but also upstream firms. Thus, the latter have economic incentives to actively discourage downstream enterprises from colluding. Huang [1] shows that an upstream supplier can in fact weaken downstream enterprises' ability to collude via nonlinear pricing contracts signed by upstream and downstream firms. On the other hand, Cunha and Sarmento [2] show that vertical integration (a merger between an upstream supplier and downstream firms participating in a cartel) promotes or stabilizes downstream collusion. Interestingly enough, the vertical integration between a downstream cartel and an upstream supplier enhances the consumer surplus, since the double marginalization problem is at least partially eliminated under the vertical merger.

Lee [3] in a Cournot setup shows that the vertically integrated enterprise can disadvantage the downstream collusion via strategic buying of intermediate goods. Strategic buying of intermediate goods increases the price of those goods. Manasakis and colleagues [4] analysed in turn the downstream firms' incentives to invest in process R&D and form a research joint venture (RJV) in the product market, under two supply chain modes – competing vertical chains, and a single supplier. It turned out that process R&D investments are higher under a single supplier mode than under rival vertical chains. The downstream firms' incentives to form an RJV are stronger in the former case than in the latter. Dai and colleagues [5] compared in turn two forms of cooperative R&D behaviour in a supply chain – cartelization, and a cost-sharing contract. It turned out that the upstream enterprise prefers cartelization, and the downstream enterprise prefers a cost-sharing contract.

It is worth observing that, in general, knowledge acquired from suppliers is quite narrow, since supplier and a downstream firm function in the same industry [6]. However, the knowledge and technological components provided by suppliers are extremely useful to downstream enterprises and their goods' production processes [7].

Following the above literature, in this chapter, we set out to investigate the incentives to vertical integration between an upstream monopoly supplier and a downstream cartel. We also compare R&D investments, market prices, and outputs between integrated and non-integrated industry.

The present chapter proceeds as follows. In the following section, we consider a behaviour of firms in a non-integrated industry with a downstream cartel and an upstream monopoly supplier. Next, we investigate the vertically integrated industry. Discussion follows and concludes the chapter.

2. Cartel Among Downstream Firms

Consider an industry composed of one upstream firm, U, and two downstream firms, denoted 1 and 2. The upstream firm supplies an intermediate good to the downstream firms at the price *w*. We normalize the costs of the upstream firm to zero. The downstream firms manufacture q_1 and q_2 units of a homogeneous final product, respectively. The production of each unit of the final good requires one unit of the intermediate good purchased from the upstream firm. The market demand for the final product is given as a linear price function:

$$p = a - q_1 - q_2, \quad (1)$$

where p denotes the market price, $Q = q_1 + q_2$ is the volume of total production in the industry, while a $(a > 0)$ is a given market parameter. Each of the downstream firms is characterized by a linear function of the total manufacturing costs:

$$C_i(q_i, x_i, x_j) = (c - x_i - \beta x_j)q_i, \quad (2)$$

where c $(c < a)$ is a given parameter of an initial efficiency of firm *i*, x_i denotes the amount of R&D investments made by the firm *i*, and x_j denotes the amount of R&D investments made by the other firm. Parameter β $(0 \leq \beta \leq 1)$ determines the size of R&D spillovers – the benefits for a given firm obtained as a result of research undertaken by the other firm.

Higher levels of β mean that the R&D investments made by one firm allow the other firm to reduce the manufacturing costs by a greater amount for free. Let *w* be the price of the intermediate good. The costs of the R&D investments have a form of quadratic function:

$$\gamma \frac{x_i^2}{2}, \quad (3)$$

where γ $(\gamma > 0)$ is a given parameter? The entry barriers to the industry are too high for new enterprises to enter.

We consider the case in which downstream firms create an industry cartel. The game proceeds in two stages. In the first stage, both downstream firms simultaneously decide about their levels of R&D investments (x_i). These decisions affect the function of total manufacturing costs of each firm. In the second stage, the firms set the levels of supply for the product market. The profit of a downstream firm *i* at the second stage of the game for a given amount of R&D investments, x_1 and x_2 is given as:

$$\pi_i = (a - q_1 - q_2)q_i - (c - x_i - \beta x_j - w)q_i - \gamma \frac{x_2^2}{2} \quad (4)$$

We solve this game using backward induction. In the second stage of the game, the downstream firms choose the production levels q_1 and q_2 to maximize their joint profit, given the amount of R&D investments, x_1 and x_2:

$$\pi = (a - q_1 - q_2)(q_1 + q_2) - (c + w - x_1 - \beta x_2)q_1 - (c + w - x_2 - \beta x_1)q_2 - \gamma \frac{x_1^2}{2} - \gamma \frac{x_2^2}{2} \quad (5)$$

At the symmetric equilibrium, i.e., $x_1 = x_2 = x$, the optimal production level of each firm in the cartel is:

$$q = q_1 = q_2 = \frac{a - c - w + (1 + \beta)x}{4} \quad (6)$$

Given the R&D investment decisions and the price of the intermediate good, *w*, the derived demand for the intermediate product is

$$Q = 2q = \frac{a - c - w + (1 + \beta)x}{2} \quad (7)$$

or equivalently,

$$w = a - c - 2Q + (1 + \beta)x \quad (8)$$

The upstream firm sets the price of the intermediate good at the monopoly level:

$$w^* = \frac{1}{2}(a - c + (1 + \beta)x) \quad (9)$$

The equilibrium aggregate output is given as

$$Q^* = \frac{1}{4}(a - c + (1 + \beta)x) \quad (10)$$

thus, the quantities offered by each downstream firm are:

$$q = q_1 = q_2 = \frac{1}{8}(a - c + (1 + \beta)x) \tag{11}$$

In the first stage of the game, firms simultaneously choose R&D investments, and their joint profit becomes:

$$\tilde{\pi} = \frac{1}{16}[a - c + (1 + \beta)x]^2 - \gamma x^2 \tag{12}$$

When the downstream firms cooperate within a cartel, both in the R&D activities and in the product market, the symmetric equilibrium arises when the R&D investments of each of the firms are:

$$\tilde{x} = \frac{(a-c)(1+\beta)}{16\gamma-(1+\beta)^2} \tag{13}$$

and the production level of each of the firms, after substituting $\tilde{x}$ given by (36) for x in the expression (34), is:

$$\tilde{q} = \tilde{q}_1 = \tilde{q}_2 = \frac{2(a-c)\gamma}{16\gamma-(1+\beta)^2} \tag{14}$$

and the price of the final product from (1) is:

$$\tilde{p} = a - \frac{4(a - c)\gamma}{16\gamma - (1 + \beta)^2}$$

From (35) it follows that the joint profit of the downstream firms in the situation of full cartelization of industry becomes:

$$\tilde{\pi} = \frac{(a-c)^2\gamma}{16\gamma-(1+\beta)^2} \tag{15}$$

thus, the profit of each downstream firm equals:

$$\tilde{\pi}_1 = \tilde{\pi}_2 = \frac{1}{2}\tilde{\pi} = \frac{1}{2}\frac{(a-c)^2\gamma}{16\gamma-(1+\beta)^2} \tag{16}$$

Thus, the upstream firm sets the price of the intermediate good at:

$$\tilde{w} = \frac{8(a-c)\gamma}{16\gamma-(1+\beta)^2} \tag{17}$$

The profit of the upstream firm is:

$$\tilde{\pi}_u = \frac{32(a-c)^2\gamma^2}{(16\gamma-(1+\beta)^2)^2} \tag{18}$$

The numerical example for the given set of parameters is in Table 1.

Table 1. Downstream cartel equilibrium for $a = 100$, $c = 20$, $\gamma = 10$, and $\beta \in [0,1]$

$\boldsymbol{\beta}$	$\tilde{x}$	$\tilde{q}_i$	$\tilde{w}$	$\tilde{p}$	$\tilde{\pi}_i$	$\tilde{\pi}_u$
0.0	0.5031	10.0629	40.2516	79.8742	402.516	810.10
0.1	0.5542	10.0762	40.3048	79.8476	403.048	812.24
0.2	0.6054	10.0908	40.3633	79.8184	403.633	814.60
0.3	0.6569	10.1068	40.4270	79.7865	404.270	817.17
0.4	0.7087	10.1240	40.4961	79.7520	404.961	819.97
0.5	0.7607	10.1426	40.5705	79.7147	405.705	822.98

Table 1. Downstream cartel equilibrium for $a = 100$, $c = 20$, $\gamma = 10$, and $\beta \in [0,1]$ (continuation)

$\boldsymbol{\beta}$	$\tilde{x}$	$\tilde{q}_i$	$\tilde{w}$	$\tilde{p}$	$\tilde{\pi}_i$	$\tilde{\pi}_u$
0.6	0.8130	10.1626	40.6504	79.6748	406.504	826.23
0.7	0.8656	10.1839	40.7358	79.6321	407.358	829.70
0.8	0.9186	10.2067	40.8267	79.5866	408.267	833.41
0.9	0.9719	10.2308	40.9233	79.5383	409.233	837.36
1.0	1.0256	10.2564	41.0256	79.4872	410.256	841.55

Source: own calculations

We investigate the behaviour of the equilibrium with the changes of parameter β. For $a>c$, we have

$$\frac{d\tilde{x}}{d\beta} = \frac{(a-c)((1+\beta)^2+16\gamma)}{(16\gamma-(1+\beta)^2)^2} > 0, \tag{19}$$

$$\frac{d\tilde{q}}{d\beta} = \frac{4(a-c)(1+\beta)\gamma}{(16\gamma-(1+\beta)^2)^2} > 0, \quad (20)$$

$$\frac{d\tilde{w}}{d\beta} = \frac{16(a-c)(1+\beta)\gamma}{((1+\beta)^2-16\gamma)^2} > 0, \quad (21)$$

$$\frac{d\tilde{p}}{d\beta} = -\frac{8(a-c)(1+\beta)\gamma}{((1+\beta)^2-16\gamma)^2} < 0, \quad (22)$$

$$\frac{d\tilde{\pi}}{d\beta} = \frac{2(a-c)^2(1+\beta)\gamma}{(16\gamma-(1+\beta)^2)^2} > 0, \quad (23)$$

thus, the increase of parameter β will cause an increase of $\tilde{x}$, $\tilde{q}_i$, $\tilde{w}$ and $\tilde{\pi}_i$, and a decrease in a market price. Interestingly enough, larger technological spill-overs enhance firms' R&D investments, outputs and downstream firms' profits. Further, larger R&D spill-overs increase the price of the component supplied by the upstream firm, possibly rising its profits. It is also worth observing that growing knowledge spill-overs negatively affect the value of a final product price. Thus, larger knowledge dissemination downstream brings lower prices, and possibly enhances the consumer surplus.

Next, since

$$\frac{d\tilde{\pi}_u}{d\beta} = \frac{128(a-c)^2(1+\beta)\gamma^2}{(16\gamma-(1+\beta)^2)^3}$$

the profit of the upstream firm increases with parameter β as long as $\gamma > \left(\frac{1+\beta}{4}\right)^2$. For $\gamma < \left(\frac{1+\beta}{4}\right)^2$, the expression $\frac{d\tilde{\pi}_u}{d\beta}$ is negative, thus the profit of the upstream firm declines with the increasing level of technological spill-overs.

3. Vertical Integration of Cartelized Industry

Consider now the situation of vertical integration of the upstream firm with the downstream cartel. Thus, the intermediate good is manufactured internally by each downstream firm. In the second stage of the game, the downstream firms choose the production levels q_1 and q_2 to maximize their joint profit, given the amount of R&D investments, x_1 and x_2:

$$\pi = (a - q_1 - q_2)(q_1 + q_2) - (c - x_1 - \beta x_2)q_1 - (c - x_2 - \beta x_1)q_2 - \gamma\frac{x_1^2}{2} - \gamma\frac{x_2^2}{2} \quad (24)$$

At the symmetric equilibrium, i.e., $x_1 = x_2 = x$, the optimal production level of each firm in the cartel is:

$$q = q_1 = q_2 = \frac{a-c+(1+\beta)x}{4} \quad (25)$$

In the first stage of the game, when firms simultaneously choose R&D investments, their joint profit becomes:

$$\pi = \frac{1}{4}[a - c + (1+\beta)x]^2 - \gamma x^2 \quad (26)$$

When the downstream firms cooperate within a cartel, both in the R&D activities and in the product market, the symmetric equilibrium arises when the R&D investments of each of the firms are:

$$\tilde{x} = \frac{2(a-c)}{4\gamma-(1+\beta)^2} \quad (27)$$

and the production level of each of the firms, after substituting $\tilde{x}$ given by (27) for *x* in the expression (25), is:

$$\tilde{q}=\tilde{q}\_1=\tilde{q}\_2=((a-c)\ \gamma)/(4\gamma-(1+\beta)\ ^2) \quad (28)$$

From (1) it follows that

$$p = a - q_1 - q_2 \quad (29)$$

From (26) it follows that the joint profit of the downstream firms in the situation of full cartelization of industry becomes:

$$\tilde{\pi} = \frac{(a-c)^2\gamma}{4\gamma-(1+\beta)^2} \tag{30}$$

thus, the profit of each downstream firm equals:

$$\tilde{\pi}_1 = \tilde{\pi}_2 = \frac{1}{2}\tilde{\pi} = \frac{1}{2}\frac{(a-c)^2\gamma}{4\gamma-(1+\beta)^2} \tag{31}$$

The numerical example for the given set of parameters is in Table 2.

Table 2. Vertically integrated downstream cartel equilibrium for $a = 100$, $c = 20$, $\gamma = 10$, and $\beta \in [0,1]$

β	$\tilde{x}$	$\tilde{q}_i$	$\tilde{p}$	$\tilde{\pi}_i$
0.0	2.0513	20.5128	58.9744	820.513
0.1	2.2686	20.6239	58.7523	824.955
0.2	2.4896	20.7469	58.5062	829.876
0.3	2.7147	20.8823	58.2354	835.291
0.4	2.9443	21.0305	57.9390	841.220
0.5	3.1788	21.1921	57.6159	847.682
0.6	3.4188	21.3675	57.2650	854.701
0.7	3.6648	21.5575	56.8849	862.301
0.8	3.9173	21.7628	56.4744	870.511
0.9	4.1770	21.9841	56.0319	879.362
1.0	4.4444	22.2222	55.5556	888.890

Source: own calculations

$$\frac{d\tilde{x}}{d\beta} = \frac{(a-c)((1+\beta)^2+4\gamma)}{(4\gamma-(1+\beta)^2)^2} > 0, \tag{32}$$

$$\frac{d\tilde{q}}{d\beta} = \frac{2(a-c)(1+\beta)\gamma}{(4\gamma-(1+\beta)^2)^2} > 0, \tag{33}$$

$$\frac{d\tilde{\pi}}{d\beta} = \frac{2(a-c)^2(1+\beta)\gamma}{(4\gamma-(1+\beta)^2)^2} > 0, \tag{34}$$

$$\frac{d\tilde{p}}{d\beta} = -\frac{4(a-c)(1+\beta)\gamma}{(4\gamma-(1+\beta)^2)^2} < 0, \tag{35}$$

thus, the increase of parameter β will cause an increase of $\tilde{x}$, $\tilde{q}_i$, $\tilde{\pi}_i$, and a decrease in a market price. In an integrated industry, larger technological spill-overs increase firms' R&D investments (and process innovations), produced quantities and firms' economic profits.

Interestingly enough, also in an integrated industry higher knowledge dissemination brings lower market prices of final goods, thus benefitting the consumers.

4. Discussion

Based on analyses in the previous sections, including tables 1 and 2, let us now compare R&D investments, outputs, market prices and firms' profits between vertically integrated and non-integrated industry. Observe that downstream firms' profits are significantly (more than 100 per cent) higher under vertical integration than in non-integrated industry. Market prices are lower under vertical integration than in the non-integrated industry. Also, in the vertically integrated industry, market prices decrease to a greater extent with the value of R&D spill-overs than in the non-integrated industry. In a non-integrated industry, the value of technological spill-overs plays almost no role in reducing market prices. Outputs or production volumes on a final good market are significantly larger in an integrated industry than in a non-integrated industry. Downstream firms produce about double quantities of goods under vertical integration than in a non-integrated industry. Further, the effect of knowledge spill-overs on produced quantities is larger in a vertically-integrated industry than in a non-integrated one. In the non-integrated industry, higher technological spill-overs increase the final good market outputs only marginally. From the viewpoint of innovation

policy, it is important to assess the impact of vertical integration on R&D investments made by firms. It turns out that vertical integration more than doubles the R&D investments made by firms on the final product market. Also, under vertical integration, higher technological spill-overs increase firms' R&D investments to a larger extent than in a non-integrated industry.

The above analysis allows us to conclude that vertical integration between an upstream monopoly supplier and a downstream cartel benefits the consumers (they pay less for the final goods, output is larger), the industry innovation (larger R&D investments under vertical integration than in a non-integrated industry), and producers who earn higher profits under vertical integration than in a non-integrated industry. So, the firms in the considered industry setup would have strong incentives to vertically integrate the industry. The results obtained in the present study replicate and extend the results obtained by Cunha and Sarmento [2]. They showed that vertical integration (a merger between an upstream monopoly supplier and downstream firms participating in a cartel) enhances the consumer surplus, since the double marginalization problem is at least partially eliminated under the vertical merger. This is also true in the present chapter. However, we also show that apart from consumers' benefits, vertical merger between a monopoly supplier and a downstream cartel is beneficial to producers and public policy-makers who are oriented at making innovation larger.

It is also worth noting that results obtained in this study complement the results obtained by Prokop and Karbowski [8]. These authors compared independent behaviour of firms and a behaviour under vertical integration. They concluded that vertical integration leads to higher R&D investments (for all values of technological spill-overs), consumer surplus and total industry welfare are higher in a vertically integrated industry than under independent behaviour of firms. Further, profits of the final good producers are significantly lower under independent behaviour of firms than under vertical integration. Lastly, the market price of a good is larger when firms behave independently than in an integrated industry.

Finally, it is also worth discussing the case of research joint venture formation downstream. Following Kamien and colleagues [9] and Kamien and Zang [10], research joint venture (RJV) is formed when firms fully disclose and share their private knowledge. As a result, under RJV the value of parameter beta is equal 1. Interestingly enough, this chapter shows that both under vertical integration between an upstream monopoly supplier and a downstream cartel, and under non-integrated industry, the existence of an RJV in the industry is privately and socially advantageous. For an RJV case, the firms' profits are maximal, R&D investments and produced quantities are the highest, and market prices of final products are the lowest, thus benefitting consumers. The public policy oriented at promoting RJVs in vertical structures seems then to be effective and beneficial to the society. We should however realize that firms' benefits from an RJV depend on firms' individual abilities to absorb knowledge. Kamien and Zang [10] showed that firms differ in their abilities to absorb knowledge produced by other firms, and these abilities depend on the degree of generality of research undertaken by a firm. A more specialized research performed by a firm means its lower absorptive capacity, and, as a result, knowledge produced by other firms can be used by a given enterprise to a lower extent. By contrast, when a firm conducts a very general research, the knowledge produced by other firms may be directly absorbed and used by the considered enterprise [8, 11-15].

5. Conclusions

We find that vertical integration between an upstream monopoly supplier and a downstream cartel benefits the consumers, the industry innovation and producers. Both downstream cartel and downstream competing firms benefit from vertical integration of the

supply chain. The downstream firms have strong incentives to vertically integrate the industry. Benefits from knowledge dissemination in the industry depend on the firms' abilities to absorb the technological knowledge.

REFERENCES

[1] Huang, Z. (2017). The Power of Upstream Contracting over Downstream Collusion. Department of Economics, University of California, San Diego, working paper.

[2] Cunha, M., Sarmento, P. (2012). Does Vertical Integration Promote Downstream Incomplete Collusion? An Evaluation of Static and Dynamic Stability. FEP Working Papers, no. 465, August 2012.

[3] Lee, W. (2016). Does Vertical Integration Facilitate Downstream Collusion? Academia Economic Papers 44, pp. 487-535.

[4] Manasakis, C., Petrakis, E., Zikos, V. (2014). Downstream Research Joint Venture with Upstream Market Power. Southern Economic Journal 80, pp. 782-802.

[5] Dai, R., Zhang, J., Tang, W. (2017). Cartelization or Cost-sharing? Comparison of cooperation modes in a green supply chain. Journal of Cleaner Production 156, pp. 159-173.

[6] Un, C., Cuervo-Cazurra, A., Asakawa, K. (2008). R&D Collaborations and Product Innovation. SSRN Article 1139170.

[7] Takeishi, A. (2002). Knowledge Partitioning in the Interfirm Division of Labor: The Case of Automotive Product Development. Organization Science 13, pp. 321-338.

[8] Prokop, J., Karbowski, A. (2019). The Impact of Vertical R&D Cooperation on Market Performance of Firms. Journal of Entrepreneurship, Management and Innovation, under review.

[9] Kamien, M.I., Muller, E., Zang, I. (1992). Research Joint Ventures and R&D Cartels. American Economic Review 82, pp. 1293-1306.

[10] Kamien, M., Zang, I. (2000). Meet me halfway: research joint ventures and absorptive capacity. International Journal of Industrial Organization 18, pp. 995-1012.

[11] Cohen, W., Levinthal, D. (1989). Innovation and learning: the two faces of R&D. Economic Journal 94, pp. 569-596.

[12] Cohen, W., Levinthal, D. (1990). Absorptive capacity: a new perspective on learning and innovation. Administrative Science Quarterly 35, pp. 128-152.

[13] Levin, R., Klevorick, A., Nelson, R., Winter, S. (1987). Appropriating the returns from industrial research and development. Brookings Papers on Economic Activity 3, pp. 783-820.

[14] Levin, R. (1988). Appropriability, R&D spending, and technological performance. American Economic Review 78, pp. 424-428.

[15] Levin, R., Reiss, P. (1988). Cost-reducing and demand-creating R&D with spill-overs. RAND Journal of Economics 19, pp. 538-556.

Interval Synchronization as Decision Support Tool for Urban Public Transportation

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1. Introduction

Urban public transport (UPT) systems have numerous stakeholders, which usually have contradictive interest and objectives. Providing a reliable collective transportation service requires well-designed timetables, which can satisfy different goals, among which we can list minimizing the total waiting time, minimizing the total travel time, or maximizing overall passenger comfort [1-4]. Timetabling is one of decision-making problems faced by decision makers in UPT systems. Decision problem here is to set departure times from the depot of each trip of each line, so that bus arrivals at stops are organized in particular patterns, so that passengers' transportation needs can be satisfied. In UPT systems with long route segments served by several lines synchronization aims at balancing the perceived ride frequency, i.e., distributing intervals between consecutive arrivals at stops belonging to such route segments evenly, so that waiting times between two consecutive trips of any two lines can be equal or almost equal.

Comfortable public transportation is extremely important in megacities, because it may convince citizens to leave their private cars at home. Reducing the number of private cars in the city leads to reducing traffic congestion and externalities. Robust, fast, and reliable public transportation may also contribute to city logistics, because it may be used in newly designed emerging logistics schedules for in-city deliveries. In agglomerations regular suburban and regional collective transport service must be integrated with the UTP system. Important parts of such networks are long radial lines, which link residential areas with the central business district (CBD). Such lines frequently have overlapping long route segments. In order to provide passengers with robust and comfortable collective transportation service planners should aim at interval synchronization at long overlapping route segments.

Long overlapping route segments of radial lines can consist of ca. 10 stops and the order of arrivals of all trips of all lines and separation times between subsequent arrivals at the first stop (congestion node) is repeated at every stop belonging to the segment. There is a group of passengers that travel along radial routes. They are substantially interested in the even distribution of intervals between consecutive trips serving these route segments. The unique feature of passengers traveling along relatively long overlapping route segments is that they do not pay attention to the "name" of the line (usually lines are marked with letters, numbers or colours), because all the lines serving this route segment can take the passengers from their origins directly to their destinations. Passengers pay attention mainly to so-called joint ride frequency they perceive at stops belonging to a long overlapping route segment and they want it to be as equalized as possible. In other words, the passengers are interested in even or almost even distribution of intervals between any two consecutive arrivals at the stop (i.e., interval synchronization).

A UPT is served by the set of lines. Each line is characterized with a specific ride frequency (the number of trips to be performed in a given period). Time between departures of two consecutive trips from the depot is called 'headway'. Depending on the form of announcing the timetable to passengers, headways may be fixed (when the headway is announced) or flexible (when arrival times of each trip at every stop are published). In numerous UPT systems passengers are not provided with information on exact time of bus arrival at each stop, they only know estimated waiting time between consecutive trips of each line; therefore, departure times of all trips of all lines should be as evenly spaced as possible.

In some UPTs the objective is to have for each planning period a timetable with fixed (homogeneous) headways, but more frequently flexible (heterogeneous) headways in planning periods were observed. Heterogeneous headways may also result from corrections introduced to the initial timetables, so that desirable synchronization can be obtained [5-8].

This chapter presents interval synchronization as a decision-making support tool used for UTP planning and management. In Section 2 interval synchronization of UPT is discussed in terms of timetable equalization. In Section 3 the problem is illustrated with selected examples of different distribution of intervals between consecutive arrivals at a stop served by several lines of different ride frequencies (headways). Conclusions are presented in Section 4.

2. Interval Synchronization – a Method of Timetable Equalization

The objective of interval synchronization is to minimize the difference between intervals between any two subsequent arrivals at each stop of a long overlapping rout segment [6, 9-12]. Two main objectives of synchronization in UTP can be listed: (1) maximizing the number of synchronization events (the number of synchronized pairs of trips), and (2) minimizing the total (transfer) waiting time (the average or the summation). The total waiting time is the most commonly utilized performance measure of the effectiveness of UTP systems. The transfer waiting time is understood as a separation time between arrivals of trips of different lines.

The transfer may be defined as taking off from a bus serving line *A* and then getting in the bus serving line *B*. In such case, the total waiting time is computed and minimized with respect to this assumption [e.g., 13]. In other works, the waiting time refers to transfer between lines *A* and *B* no matter if a passenger changes from *A* to *B* or from *B* to *A* [e.g., 11]; in such case it also does not matter if line *A* arrives immediately after line *B* or they are separated by an arrival of any other line [e.g., 10]. In the majority of works the performance measures are utilized to express objectives in optimization models. Moreover, most frequently a single performance measure (e.g., the total waiting time) – and consequently a single objective – is enough to achieve desirable results of transfer synchronization of timetables.

However, it is hardly possible in cases with interval synchronization, since it aims at balancing intervals between consecutive trips of different lines [12].

The balance of a timetable is assessed with the reference to the dispersion of intervals between subsequent arrivals as a main criterion, so that the equalization of timetable can be measured with the coefficient of variation of intervals (*CV*). However, it is valuable to take into consideration also other performance measure, because their values can provide information on different aspects of the timetable under study.

3. Selected Examples of Timetable Equalization

Assessing the evenness of the UTP timetable is illustrated with the following examples (see Tables 1-12); in Cases 1-6 synchronization of 2 lines with fixed headways is considered (in Cases 1-3 both lines go with the same headway, 6 minutes, while in Cases 4-6 one

headway is the half of another). In Tables 1-6 timetables (distributions of arrivals) at a specific stop are provided. Note, that in Cases 4-6 the headway of line *L*2 is the half of the headway of line *L*1, hence line *L*2 has to perform in the same planning period twice more trips. Therefore, it happens that two trips of Line *L*2 arrive at the stop directly after another.

As we could expected, the best timetable (the one with the most even distribution of intervals) synchronizing two lines with the same riding frequency is obtained in Case 1 (*CV*=0.00). Best synchronization of two lines, where one headway is the half of another is obtained for Case 5 (*CV*=0.36). Next groups of cases are Cases 7-9 and Cases 10-12, where three lines are synchronized. In Cases 7-9 all the lines have the same headway, while in Cases 10-12 the headway of line *L*3 is twice as large as the headway of lines *L*1 and *L*2. Best synchronization of three lines is indicated by the lowest value of *CV*.

Table 1. Case 1: two lines (L1; L2) with the same headways (H(L1) = H(L2) = 6 minutes)

Trips L1 – Line 1 L2 – Line 2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Arrival [minutes]	0	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114
Interval [minutes]		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

Table 2. Case 2: two lines (L1; L2) with the same headways (H(L1) = H(L2) = 6 minutes)

Trips L1 – Line 1 L2 – Line 2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Arrival [minutes]	0	5	12	17	24	29	36	41	48	53	60	65	72	77	84	89	96	101	108	113
Interval [minutes]		5	7	5	7	5	7	5	7	5	7	5	7	5	7	5	7	5	7	5

Table 3. Case 3: two lines (L1; L2) with the same headways (H(L1) = H(L2) = 6 minutes)

Trips L1 – Line 1 L2 – Line 2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Arrival [minutes]	0	3	12	15	24	27	36	39	48	51	60	63	72	75	84	87	96	99	108	111
Interval [minutes]		3	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9	3

Table 4. Case 4: two lines (L1; L2) with the same headways (H(L1) = 12 minutes; H(L2) = 6 minutes)

Trips L1 – Line 1 L2 – Line 2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2
Arrival [minutes]	0	1	7	12	13	19	24	25	31	36	37	43	48	49	55	60	61	67	72	73
Interval [minutes]		1	6	5	1	6	5	1	6	5	1	6	5	1	6	5	1	6	5	1

Table 5. Case 5: two lines (L1; L2) with the same headways (H(L1) = 12 minutes; H(L2) = 6 minutes)

Trips L1 – Line 1 L2 – Line 2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2
Arrival [minutes]	0	3	9	12	15	21	24	27	33	36	39	45	48	51	57	60	63	69	72	75
Interval [minutes]		3	6	3	3	6	3	3	6	3	3	6	3	3	6	3	3	6	3	3

Table 6. Case 6: two lines (L1; L2) with the same headways (H(L1) = 12 minutes; H(L2) = 6 minutes)

Trips L1 – Line 1 L2 – Line 2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2	L2	L1	L2
Arrival [minutes]	0	4	10	12	16	22	24	28	34	36	40	46	48	52	58	60	64	70	72	76
Interval [minutes]		4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4

Table 7. Case 7: three lines (L1; L2; L3) with the same headways (H(L1) = H(L2) = H(L3) = 12 minutes)

Trips **L1 – Line 1** **L2 – Line 2** **L3 – Line 3**	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2
Arrival [minutes]	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76
Interval [minutes]		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Table 8. Case 8: three lines (L1; L2; L3) with the same headways (H(L1) = H(L2) = H(L3) = 12 minutes)

Trips **L1 – Line 1** **L2 – Line 2** **L3 – Line 3**	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2
Arrival [minutes]	0	2	4	12	14	16	24	26	28	36	38	40	48	50	52	60	62	64	72	74
Interval [minutes]		2	2	8	2	2	8	2	2	8	2	2	8	2	2	8	2	2	8	2

Table 9. Case 9: three lines (L1; L2; L3) with the same headways (H(L1) = H(L2) = H(L3) = 12 minutes)

Trips **L1 – Line 1** **L2 – Line 2** **L3 – Line 3**	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2
Arrival [minutes]	0	3	6	12	15	18	24	27	30	36	39	42	48	51	54	60	63	66	72	75
Interval [minutes]		3	3	6	3	3	6	3	3	6	3	3	6	3	3	6	3	3	6	3

Table 10. Case 10: three lines (L1; L2; L3) with the same headways (H(L1) = H(L2) = 6 minutes; H(L3) = 12 minutes)

Trips **L1 – Line 1** **L2 – Line 2** **L3 – Line 3**	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2
Arrival [minutes]	0	2	4	6	8	12	14	16	18	20	24	26	28	30	32	36	38	40	42	44
Interval [minutes]		2	2	2	2	4	2	2	2	2	4	2	2	2	2	4	2	2	2	2

Table 11. Case 11: three lines (L1; L2; L3) with the same headways (H(L1) = H(L2) = 6 minutes; H(L3) = 12 minutes)

Trips **L1 – Line 1** **L2 – Line 2** **L3 – Line 3**	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2
Arrival [minutes]	0	3	6	6	9	12	15	18	18	21	24	27	30	30	33	36	39	42	42	45
Interval [minutes]		3	3	0	3	3	3	3	0	3	3	3	3	0	3	3	3	3	0	3

Table 12. Case 12: three lines (L1; L2; L3) with the same headways (H(L1) = H(L2) = 6 minutes; H(L3) = 12 minutes)

Trips **L1 – Line 1** **L2 – Line 2** **L3 – Line 3**	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2
Arrival [minutes]	0	3	6	6	9	12	15	18	18	21	24	27	30	30	33	36	39	42	42	45
Interval [minutes]		3	3	0	3	3	3	3	0	3	3	3	3	0	3	3	3	3	0	3

Performance measures collected in the Table 13 show that the lowest value of *CV* of intervals always indicates the best timetable (the most even one).

Table 13. Cases 1-12: performance measures

Performance measures	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12
Number of lines	2	2	2	2	2	2	3	3	3	3	3	3
Headways [minutes]	6 6	6 6	6 6	12 6	12 6	12 6	12 12 12	12 12 12	12 12 12	6 6 12	6 6 12	6 6 12
Coefficient of variation (***CV***)*	0.00	0.17	0.53	0.57	0.36	0.40	0.00	0.74	0.36	0.32	0.53	0.91
Max. interval (***MST***)** [minutes]	6.00	7.00	9.00	6.00	6.00	6.00	4.00	8.00	6.00	4.00	3.00	6.00
Min. interval (***MST***)*** [minutes]	6.00	5.00	3.00	1.00	3.00	2.00	0.00	2.00	3.00	2.00	0.00	0.00
Av. interval (***AWT***)**** [minutes]	6.00	5.95	5.84	3.95	4.05	4.10	4.00	3.80	3.90	2.34	2.36	2.53
Total interval (***TWT***)***** [minutes]	114.00	113.00	111.00	79.00	81.00	82.00	80.00	76.00	78.00	44.00	45.00	48.00

** Coefficient of variation of intervals between arrivals of consecutive trips; ** Maximum interval between arrivals of subsequent trips; *** Minimum interval between arrivals of subsequent trips; **** Average interval between arrivals of subsequent trips; ***** Total interval between arrivals of subsequent trips*

4. Conclusion

The brief analysis of performance measures shows that the coefficient of variation of intervals between arrivals of consecutive trips is the most accurate measure for evaluating timetable equalization. These simple statistics can be a useful tool for decision makers, since it measures the fulfilment of the principal objective of interval synchronization: minimizing the difference between intervals between arrivals of consecutive trips at a given stop.

Additional statistics also show that interval synchronization can reduce the total waiting and travel times, as the maximum interval between two subsequent arrivals (*MST*) can be decreased. Interval synchronization lead to balancing the average waiting and travel times, however the price paid here is the increase of the total interval between arrivals of subsequent trips (*TWT*) and the average interval between arrivals of subsequent trips (*AWT*).

Balanced timetables are desired usually in public transport networks with long routes served by several lines. Coefficient of variation of intervals seems to be appropriate indicator of the fulfilment of the objectives of interval synchronization, so decision makers can use it for justifying their choices between alternative timetables.

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REFERENCES

[1] Gdowska, K.Z., Książek, R. (2011). Choice of optimisation criteria for the timetabling problem in city public transportation for tram lines sharing intermediate stops. In: Aspects of production engineering and management. Krakow: AGH University of Science and Technology Press, Krakow, pp. 107-121.

[2] Ceder, A., Chowdhury, S., Taghipouran, N., Olsen, J. (2013). Modelling public-transport users' behaviour at connection point. Transport Policy 27(C), pp. 112-122.

[3] Avineri, E. (2014). A cumulative prospect theory approach to passenger's behaviour modelling: waiting time paradox revisited. Intelligent Transportation Systems 8(4), pp. 195-204.

[4] Millonig, A., Sleszynski, M., Ulm, M. (2012). Sitting, waiting, wishing: Waiting time perception in public transport. In: 15th International IEEE Conference on Intelligent Transportation Systems Anchorage, Alaska, USA, September 16-19, 2012, pp. 1852-1857.
[5] Ceder, A., Golany, B., Tal, O. (2001). Creating bus timetables with maximal synchronization. Transportation Research Part A: Policy and Practice 35(10), pp. 913-928.
[6] Eranki, A. (2004). A model to create bus timetables to attain maximum synchronization considering waiting times at transfer stops. Master's Thesis, University of South Florida, Department of Industrial and Management System Engineering.
[7] Ibarra-Rojas, O.J., López-Irarragorri, F., Rios-Solis, Y.A. (2016). Multiperiod Bus Timetabling. Transportation Science, 50(3), pp. 805-822.
[8] Guihaire, V., Hao, J.K. (2008). Transit network design and scheduling. A global review. Transportation Research Part A: Policy and Practice 42(10), pp. 1251-1273.
[9] Ibarra-Rojas, O. J., Rios-Solis, Y.A. (2012). Synchronization of bus timetabling. Transportation Research Part B, 46(5), pp. 599-614.
[10] Ceder, A. (2001). Bus Timetables with Even Passenger Loads as Opposed to Even Headways. Transportation Research Record: Journal of the Transportation Research Board, 1760, pp. 3-9.
[11] Adamski, A. (2003). Inteligentne systemy transportowe. Sterowanie, nadzór i zarządzanie. Krakow: Uczelniane Wydawnictwa Naukowo-Dydaktyczne AGH.
[12] Gdowska, K. (2016). Models and methods for harmonization of urban public transport timetables in a network with radial routes. PhD Thesis. AGH University of Science and Technology, Faculty of Management.
[13] Sroka, R. (2005). Problem synchronizacji interwałowej w miejskiej komunikacji publicznej. PhD Thesis. Politechnika Wrocławska, Instytut Organizacji i Zarzadzania.

Collaboration of Polish Enterprises in Feld of Innovative Activities

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Keywords: Innovations, collaboration of enterprises, Polish enterprises

1. Introduction

Company's capacity to innovate constitutes one of the key factors of its success.

Innovations have become a driving force of the economy and major determinant of the country's socio-economic development. The level of innovativeness of the Polish economy is not sufficient. Coordinated actions of all institutions involved in the national economy is required to improve the situation. The cooperation between the enterprises and the scientific institutions is of particular importance. Also, the cooperation of enterprises in the field of innovative processes may bring considerable benefits. The cooperation would provide the companies with wider access to knowledge and new technologies as well as promote direct exchange of experiences.

The present study aims at assessing the cooperation of Polish enterprises with both institutions of science and practice in the field of innovation. The chapter is based on the data from the years 2014-2016 published by the Central Statistical Office and Eurostat.

2. Concept and Key Factors of Innovative Activity

Economic sciences owe the first definition of innovation to J.A. Schumpeter. He defined innovation as an inimitable, fundamental and radical change; a transformation of a new idea or technological invention into marketable product or process. It is a broad approach to innovation, which covers the introduction of the new method or production organization, application of new raw materials or semi-products on the market, introduction of new products to the manufacturing process, or developing a new market [7]. These days the innovation discussed in various studies, more often includes both fundamental changes to new products and processes – new for the industry as well as for enterprises, and simple modifications to existing products, processes and practices [5]. Such understanding of innovation refers to the implementation of a new or significantly improved product (produce or service) or process, new marketing method or organizational method in economic practice, reorganizing the way of working, work place or company's relations with the social environment. Products, processes and methods (technical, organizational and marketing) may be called innovations if they are new or substantially improved, at least from the viewpoint of the company introducing them [6]. A crucial element of the innovation process is its commercialization. Commercialization is a wide spectrum of activities that refer to the transformation of knowledge into new products, technologies and organizational solutions [5].

A business entity, which implements new solutions that have not been applied before, is referred to as an innovative enterprise, whereas innovative activities are understood as all activities of a scientific, technical, organizational, financial and commercial nature, which aim at the commercial application of a new solution. Some of these activities are innovative

themselves, while others may not involve an element of novelty, but are essential for the development and implementation of innovation. Innovation may be created by the enterprise itself or may rely on the purchased external goods or services, including knowledge or consulting services [6].

As innovative activities are characterized by relatively high risk, not all innovative processes are successful. Carrying out an innovation process in cooperation with other entities means increasing chances of success of commercialization of innovation. The more and more interdisciplinary character of innovation causes the fact that enterprises often are unable to introduce it themselves based only on their own research and development resources [1].

Cooperation of enterprises in the field of innovation allows for reduction of costs associated with the innovative process, shorter time for the commercialization of innovation and increase the probability of its success.

3. Innovative Activity of Enterprises in Poland

In the latest European Innovation Scoreboard for the year 2018, where the European average for innovation amounted to 100 points, Poland, with the score of 53.6 points, appears only in the 25th position among 28 countries [4]. We were preceded only and insignificantly by Croatia, Romania and Bulgaria. Sweden remains the European champion of innovation closely followed by Denmark, Finland and the Netherland. Such a poor score in the ranking comes as no surprise when we look at the percentage of innovation active enterprises in our country compared to other European countries. Among all the European countries, the highest average share of innovation active industrial companies in the years 2014-2016 was reported in Switzerland (60.2%), and the lowest in Romania (6.4%). The percentage of such companies in Poland was 18,6%. The highest share of innovation active enterprises in the service sector is in Iceland (50%), the lowest in Romania (6.6%), and in Poland it amounted to 12.3% [3]. The share of innovation active enterprises in the overall number of enterprises in Poland has practically not changed from 2011. It fluctuates around 14% [8].

The research shows that Polish businesses hold one of the last positions in Europe when considering: the amount of expenditures assigned to innovative activities, the percentage of entities implementing innovative solutions, the position held in respect to research and development activity, both in terms of expenditure, the number of organizations engaged in such activity, and the average value of marketed production of new or significantly improved goods [9].

The mechanism of competition may be considered as the strongest incentive for the processes of innovation transfer, which should stimulate investment activities. In Poland, however, this mechanism is not effective due to low labour costs and capital resources. Under such circumstances, increased access to public funds assigned for innovative activities and research and development may become one of key factors contributing to the transfer of new technologies to enterprises [2]. For this purpose, numerous funds and supporting institutions, centers of innovation, or technology and industrial parks are created. For example, the Polish Agency of Enterprise Development, in its operation, runs among others activities associated with the support for business-related centres with particular emphasis on institutions that deal with the transfer of technology to economy, that is business incubators, including academic entrepreneurship, centres of technology and innovation transfer, technology accelerators, technology parks [10].

4. Collaboration of Polish Enterprises in Field of Innovation

Cooperation in the field of innovative activity refers to an active participation in joint projects with other enterprises or non-profit institutions. It may be of a "forward-looking" and long-term nature and does not need to entail immediate, tangible economic benefits for the participating partners [3].

Cooperation should become, for all parties involved, a valuable source of expertise enabling the companies to complete its competences and booster of development activities.

The relatively low innovation level of the Polish economy is accompanied by low level of the cooperation of enterprises the field of innovation implementation.

The analysis of data revealed, that in the years 2014-2016 only 6.7% of industrial companies and 3.9% of service providers established cooperation with other subjects in the field of innovation activity. Large enterprises are more likely to establish cooperation than smaller businesses. Among industrial enterprises, 3.2% of small, 12% of medium-sized and 31.2% of large companies established cooperation. Among service providers, on the other hand, cooperation was declared at the same time by 2.6% small, 8.1% medium-sized and 19.6% large companies (Fig. 1).

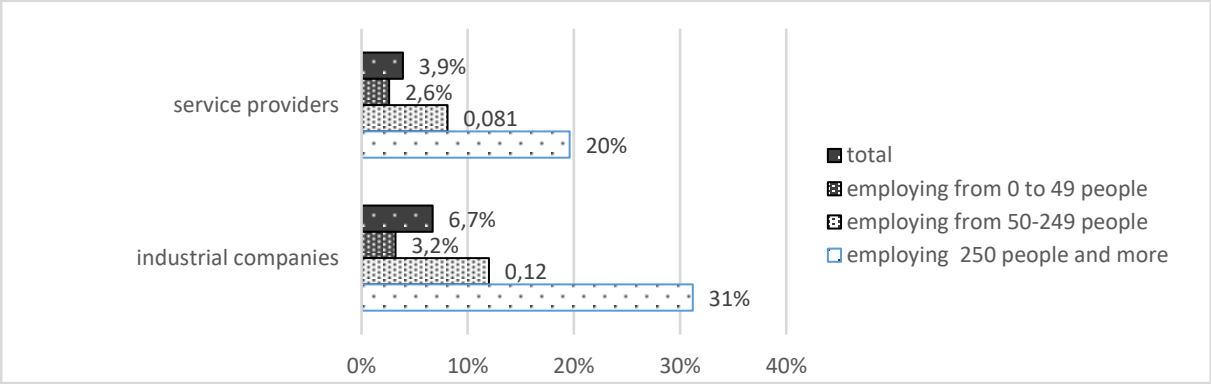

Fig. 1. The percentage of enterprises engaged in cooperation in the field of innovative activity among service providers and industrial companies in the years 2014-2016 in Poland by size.
Source: own elaboration based on statistical data published under the *Innovative Activity of Enterprises in the years 2014-2016*, GUS (Central Statistical Office), US (Statistical Office) in Szczecin, Warsaw, Szczecin 2017

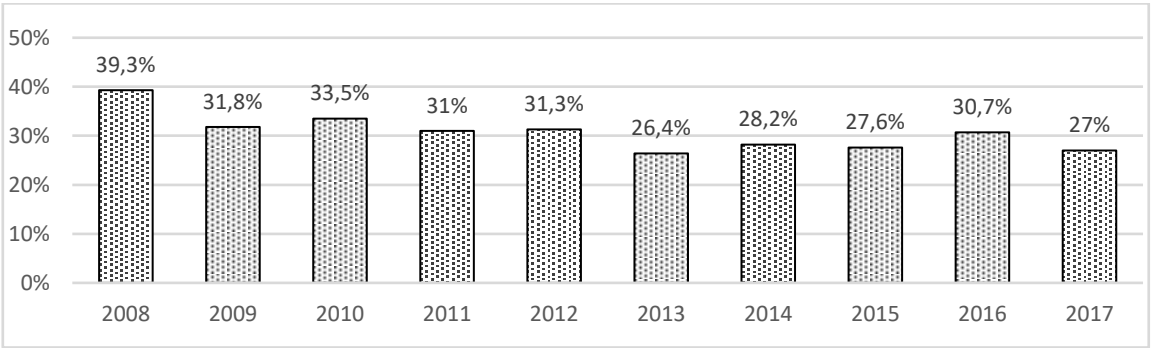

Fig. 2. Share of Polish enterprises cooperating with another entity in field of innovative activity among innovative active enterprises in Poland in years 2008-2017.
Source: own elaboration based on data provided by GUS (https://strateg.stat.gov.pl)

On average one in three innovation active enterprises in Poland undertakes a cooperation with other institutions. However, it is particularly worrying that the percentage of enterprises cooperating with other institutions among active innovative companies has decreased by over 10% from 2008 to 2017. (Fig. 2.)

If we compare the level of cooperation among innovative enterprises, with division into industrial and service companies, a slightly higher proportion of the former ones undertook cooperation with another business entity. In the years 2014-2016, 32.8% of innovation active industrial enterprises and 26.9% of service providers had a partner company.

The percentage of enterprises establishing cooperation increases with the company size. In the years 2014-2016, among industrial enterprises-cooperation was declared by 25.6% of small innovation active enterprises, 33.7% medium-sized and 50.8% large ones. Among service providers, on the other hand, cooperation was declared at the same time by 21.9% small, 34.4% medium-sized and 44.7% large companies [3]. As noted from the analysis above, one in three companies running innovative activity in Poland has a partner company.

This proportion may reach even 50% among large companies.

A worrying phenomenon is the fact, that when establishing cooperation, over w 70% of the Polish enterprises look for a partner company in the business sector rather than in the world of science. Only one in three enterprises in the years 2014-2016 established cooperation in the field of innovative activity with scientific units (Fig. 3)

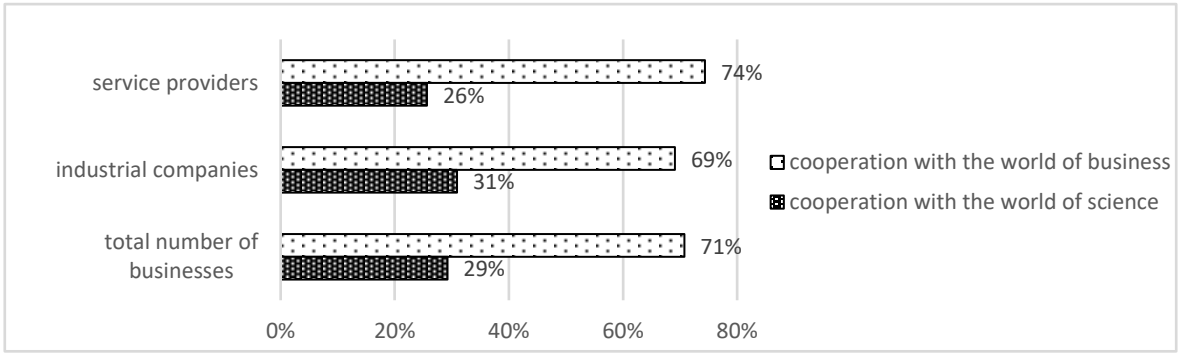

Fig. 3. The share of enterprises cooperating in the field of innovation activity with scientific units and business entities and the total number of businesses undertaking a cooperation in Poland in the years 2014-2016.
Source: own elaboration based on statistical data published under the *Innovative Activity of Enterprises in the years 2014-2016*, GUS, Statistical Office in Szczecin, Warsaw, Szczecin 2017.

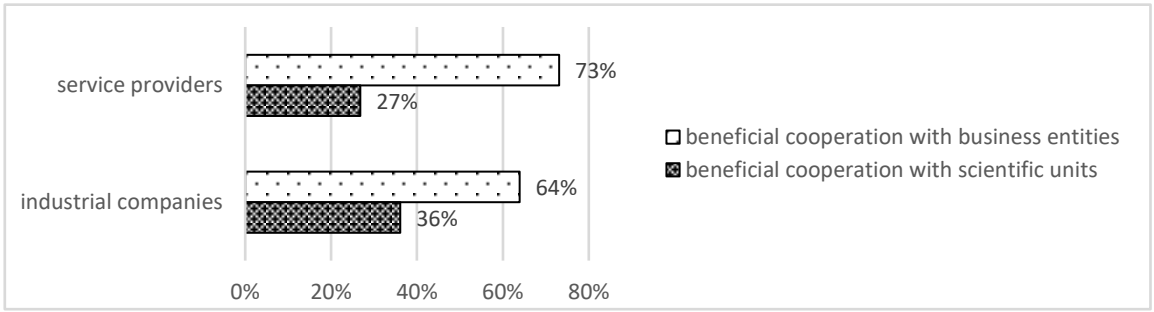

Fig. 4. The share of industrial enterprises and service providers that assessed their cooperation's in the field of innovation activity as most beneficial in the years 2014-2016 according to partner institution.
Source: own elaboration based on statistical data published under the *Innovative Activity of Enterprises in the years 2014-2016*, GUS, Statistical Office in Szczecin, Warsaw, Szczecin 2017

The above-mentioned results correlate with entrepreneurs' opinion on the choice of a business partner. Entrepreneurs tend to value cooperation with a business partner much more than with a scientific institution. Over 73% of service providers and 64% of industrial companies evaluate their cooperation with business world as one that is most beneficial to them. In turn, 36.1% of industrial companies and 26.8% of service providers evaluate their cooperation with scientific institutions as the most beneficial (Fig. 4)

5. Conclusions

The cooperation of enterprises in the field of innovative activities is one of the factors that may contribute to the growth of the competitiveness of enterprises, and consequently to the country's economic development. The conducted analysis indicates, that there is still a large gap between the level of innovativeness of the Polish economy and the levels of economy in Western European countries. In Poland, the low level of innovativeness is closely related to the low level of cooperation between enterprises with regard to implementation of innovative activities. Only about 6,7% of industrial companies and less than 4% of service providers undertake a cooperation with another institution. Companies that are engaged into innovative activity have higher awareness of the importance of partnership within this process. In the years 2014-2016 almost 33% of innovative industrial enterprises and 27% of service providers cooperated with another entity. However, it is particularly worrying that the percentage of enterprises cooperating in the field of innovative activity among active innovative companies has decreased by 10% since 2008.

The main responsibility of scientific institutions is to develop, expand and widespread knowledge while the duty of the business entities is to constantly look for new solutions aiming at the further development of the company. Therefore, the cooperation of these two environments – the worlds of science and business – is a great opportunity for the transfer of innovative scientific solutions to practice. The carried-out analysis shows that Polish enterprises value much more their business partners than scientific ones. Only 30% of companies undertaking cooperation would choose a scientific partner, 70% would rather engage themselves into collaboration with another business entity. The evaluation of such cooperation made by enterprises is conclusive. Over 64% of companies running industrial activity and 73% of service providers stated that the cooperation with the world of business is the most beneficial for them. The reality is that both parties are to be blamed. Scientific institutions do not adapt their technological projects to practical applications and the lack of research and development base within the industry makes is impossible for the innovative solutions to be commercially applied. Thus, the activities by institutions of technology transfer often turn out to be ineffective.

The analysed statistic data confirm that both the cooperation between business and science and the cooperation between innovative enterprises themselves seem to be the key to the improvement of the Poland's innovativeness level. The aim mentioned in the introduction to the study has been achieved. The solutions to the present situation require a deeper substantial analysis of the reasons explaining the phenomenon.

REFERENCES

[1] Bessant J., Tidd. (2011), Innovation and Entrepreneurship, 2nd Edition, John Wiley & Sons, New York, p. 341.
[2] Duda J., (2009). Bariery i korzyści wynikające ze współpracy przedsiębiorstw z ośrodkami naukowymi, Managerial Economics, nr 5, p. 31.
[3] Działalność innowacyjna przedsiębiorstw w latach 2014-2016, (2017). Statistics Poland, Warsaw, Szczecin, pp. 17-50, pp. 85-100.
[4] European Innovation Ranking 2018: Europa musi zwiększyć przewagę w dziedzinie innowacji, European Commission – Press release, (22 of June 2018), Brussels.
[5] Innowacje i transfer technologii. Słownik pojęć, (2011). PARP, ed. K. B. Matusiak, Warsaw, p. 112, pp. 139-140.
[6] Podręcznik Oslo. Zasady Gromadzenia i Interpretacji Danych Dotyczących Innowacji, (2008). Warsaw, Komisja Europejska, OECD, MNiSW, ISBN 9788361100133, p. 48.
[7] Schumpeter J.A., (1960). Teoria rozwoju gospodarczego, PWN, Warsaw, pp. 99-101.

[8] Statistics Poland (https://strateg.stat.gov.pl/dashboard/#/obszary-tematyczne/21), access on-line: 30.01.2019.
[9] Wiśniewska J., Janasz K., (2018). Działalność innowacyjna przedsiębiorstw w Polsce, http://www.ptzp.org.pl/s107/Artykuly_IZIP_2018), access on-line: 30.01.2019.
[10] Współpraca nauki i biznesu, (2013). ed. K. Bromski, Polish Agency for Enterprise Development, Warsaw, p. 4.

The Role of Collaboration Between Science and Business in Internalization of Micro and Small Sized Enterprises

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Keywords: Collaboration, Internalization, SMEs, science institutions

1. Introduction

Initially, research into internalization was mainly focused on large enterprises, but as the role of small and medium enterprises (SME) grew in the highly developed countries, explicit changes in research trends could be observed. Different authors increasingly more frequently included the small and medium enterprises sector in their studies. The preliminary research conducted by J. Da Silva and A. Da Rocha [4] demonstrated that larger companies were able to better tackle the challenges of the international market than micro, medium and small enterprises (MMSEs) , whereas more recent studies by Shaw and Darroch [21] suggest the inverse relationship between the size of an enterprise and the scale and gravity of barriers related to internalization. This means that micro and medium enterprises do not inherently have to be more vulnerable to greater impediments in the internalization process than larger ones.

Still, the group of micro and small enterprises exhibits an exceptionally low degree of internationalization (at the level of approx. 5%) [5]. A possible reason might be a lack of knowledge on internalization and insufficient access to innovations. These resources can be supplemented through the framework of entrepreneurs' collaboration with science and research institutions, such as universities. Therefore, the aim of this chapter is to find the answer to the question if micro and small enterprises collaborate with science and research institutions and, if so, to what extent.

In order to meet the thus formulated objective, the H1 hypothesis was put forward: the size of an enterprise affects the intensity of collaboration with business partners, but it does not have an effect on the intensity of collaboration with scientific institutions.

Moreover, an additional aim is to identify the factors which have motivated entrepreneurs to increased activity in the international market.

2. Collaboration Between Science and Business: Review of International Research

Numerous researchers have addressed the problem of the significance and nature of collaboration at the science-business interface [14, 9]. The results of their research point out to the fact that this collaboration is highly beneficial for both parties, i.e., entrepreneurs and universities. R. Hjerppe and J Kinder [10] as well as M. Nieminien and E. Kaukonen [18] arrived at similar conclusions.

One of the factors in favour of the strengthening of this collaboration is technological progress. According to W. J. Baumol [1], entrepreneurs need support from science and research institutions in order to be able to implement ever more complex new technologies.

Other motivations for undertaking collaboration with science are, inter alia, sharing the costs of research and development (R&D) activities in the case of new technologies, sharing

the risks inherent in the development of new technologies as well as access to the knowledge generated by universities [8]. Therefore, it is important that entrepreneurs can find the right partner among science and research institutions for carrying out R&D activities [13]. J.D. Bower [3] and M.D. Santoro and S. Gapalakrishnana [21] claim that collaboration in the field of R&D with the public research base offers innovative enterprises the opportunity to acquire scarce resources such as skills and knowledge. This gap in their resources can be successfully supplemented by universities, which can provide enterprises with not only access to basic research but also potential candidates for future employees. On the other hand, enterprises have practical knowledge on how to launch new products and enable the commercialization of the results of research conducted at universities.

Those enterprises that are willing to gain and/or maintain competitive advantage should create unique, and difficult to be reproduced by their competitors, strategies which would be based on novel ideas, products and new forms of work organization [6]. K. Laursen and A. Salter [12] confirmed that those enterprises which make use of various external sources of knowledge for the implementation of innovations frequently utilize knowledge and research results generated at universities. The authors claim that the more the company policy is oriented at the search for innovations, the more likely the company is to implement the results of studies carried out at universities.

Since the 1980s, many research results have been published which indicate that innovative processes are characterized by an interactive bond between public research institutions and private companies [7, 11, 14, 17]. Currently, this collaboration between businesses and public research institutions is regarded as a crucial factor determining innovation and, as a result, the economic growth and competitiveness of national economies [20].

An excellent example to confirm this is the Finnish economy, which tops the rankings of innovativeness[1]. These are flows between science and business that promote the growth and development of local industries in Finland [1]. In Finland, the collaboration between universities and private enterprises is considered to be one of the most important areas which contribute to the transformation of state-financed basic research into commercial innovations, technological advances and productivity gains. To a large extent, it is caused by the developed and successfully implemented strategy known as the "Finnish innovation policy". This strategy has been consistently realized for many years, and the most recently published document includes the strategy for the years 2014-2020. The innovation support system in Finland [23][2] assumes that the collaboration in the field of research and development (R&D) between universities and entrepreneurs is a key factor in the economic growth.

3. Research Methodology

This chapter presents the findings of the author's studies which were carried out in the Malopolska Region in the years 2011-2015. The research sample was selected through

[1] In 2016, a ranking of 50 most innovative world's economies was published, and Finland won the seventh place in it (*Bloomberg Innovation Index*) (Retrieved September 14, 2016, from http://www.bloomberg.com). Its enterprises are characterized by high innovativeness, as indicated by a high Summary Innovation Index (SII). According to the latest report *Innovation Union Scoreboard 2015* (https://badania.parp.gov.pl), this index amounts to 0.676, ranking Finland in the third place among all the EU countries (the same index for Poland is 0.313, which places it in the 24th position as a moderately innovative country)

[2] The report was drawn up under the supervision of Jormy Elorant, a successful Finnish businessman. The aim of this report was to identify unfavourable tendencies in the Finnish economy and to address them with relevant measures to reverse this trend (the falling level of investments in industry, decreasing outlays on research and development works, balancing the public finance sector) and transforming Finland's weaknesses, such as a small domestic market, peripheral geographical location, hermetic language, and high level of costs into its assets.

purposeful selection and consisted of 352 micro and small[3] enterprises, where micro-enterprises accounted for 82% and small enterprises for 18%. In terms of its structure, the research sample reflected the general structure of the population of micro and small enterprises in Poland, where micro and small enterprises represent 81% and 16%, respectively, of the general MSE population. A questionnaire and structured interview were used as the research methods. The studies were carried out in the course of the author's individual meetings with entrepreneurs, which allowed to eliminate potential errors that might have resulted from misunderstandings. The studies were conducted in the Malopolska Region, since this is a region with a high innovation potential. There are 29 universities there, all of which occupy high positions in the Perspektywy Universitiy Ranking (of top Polish universities) and in the ranking published by Shanghai Jiao Tong University (the so-called Shanghai List) [19].

For the purposes of the verification of the research results, the $\chi 2$ Pearson's test was used where H0 hypothesis means that there is no relationship between the variables with respect to H1, i.e., that the variables are dependent ones.

4. Research Results

As shown above, the collaboration between companies and universities has a positive influence on increasing the innovativeness, competitiveness and internationalization of enterprises. Therefore, below are presented the results of research into the collaboration between micro and small enterprises with various organizations.

The findings presented in Fig.1 indicate that micro and small enterprises in the Malopolska Region (MMSE), despite having a really high potential for collaboration with universities, are not involved in such collaboration on a regular basis. More than a half (53%) of the surveyed entities do not collaborate with universities or other business partners at all, whereas those companies which are involved in some kind of collaboration, due to harmonized procedures and simplifications connected with the EU market, most frequently (36%) have business partners within the EU, approximately 16% cooperate with foreign partners but only in Poland, and only 10% cooperate with entrepreneurs from beyond the EU.

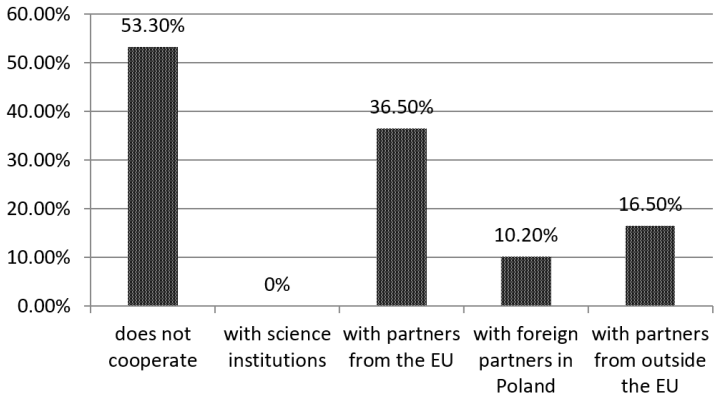

Fig. 1. The partners MMSE collaborate with
Source: Own research

[3] The classification of Polish micro, small and medium enterprises was conducted in accordance with the Act of 2 July 2004 on freedom of economic activity (Journal of Laws 2013, item 672), taking into account the conditions related to relationships with other entities. It takes into consideration the number of employees who are subject to compulsory social insurance and the turnover volume, but disregards the balance sheet total.

- micro-enterprises: up to 9 employees, up to 2 million euros in sales,
- small enterprises: 10-49 employees >2 to 10 million euros in sales,

Performing an analysis by the size of enterprises, it can be observed that the bigger an enterprise is, the more frequently it cooperates with business partners, still this relationship does not refer to the collaboration with science and research institutions. The χ^2 Pearson's test confirms the significant difference between the size of an enterprise and its activity in the field of collaboration ($\chi=12.93$; $df=3$; $p=0.0047$). There is no collaboration in the case of almost 60% of micro-enterprises, and merely 36% of small enterprises are involved in it. 55% of small enterprises and approx. 32% of micro-enterprises cooperate with EU companies. A similar tendency is maintained in the case of cooperation with foreign companies in Poland (approx. 15% ME and approx. 23% SE), which is illustrated in Fig. 2.

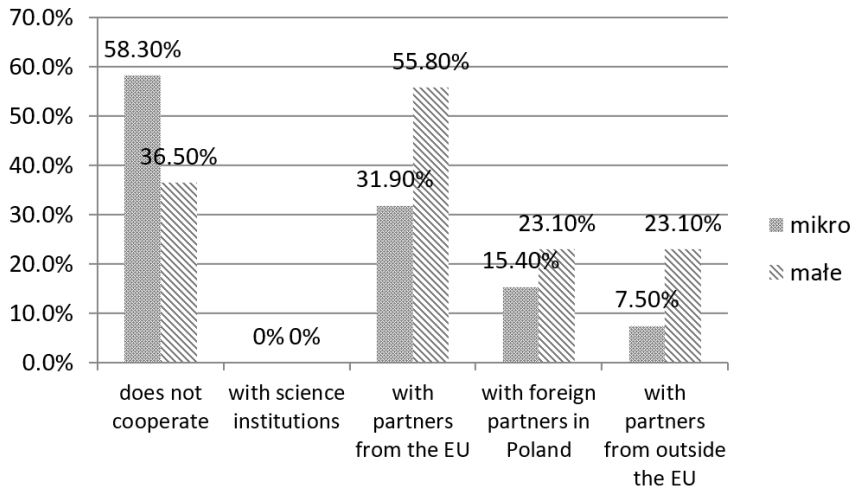

Fig. 2. Partners MSE collaborate with.
Source: Own research

Thus, the validity of H1 can be confirmed: the size of an enterprise affects the intensity of its cooperation with business partners, but it has no influence on the intensity of its collaboration with science and research institutions.

As indicated by the above data, few entrepreneurs are involved in cooperation in the international market and, therefore, below is presented a list of factors which, according to entrepreneurs, could encourage them to undertake or intensify the internationalization process. Most frequently, entrepreneurs point out to the fact that they lack sufficient knowledge on activity in the international market (48%) and on the relevant procedures (over 33%). Entrepreneurs also indicated that having business contacts would be valuable (30%).

What was also indicated as an incentive was the availability of loans supporting new entrants in the international market (16%) and lower costs of internationalization (12%).

Moreover, entrepreneurs mentioned, although only marginally, access to the distribution channels (9.8%), the significance of which is, in fact, on the decrease in the age of widespread digitization.

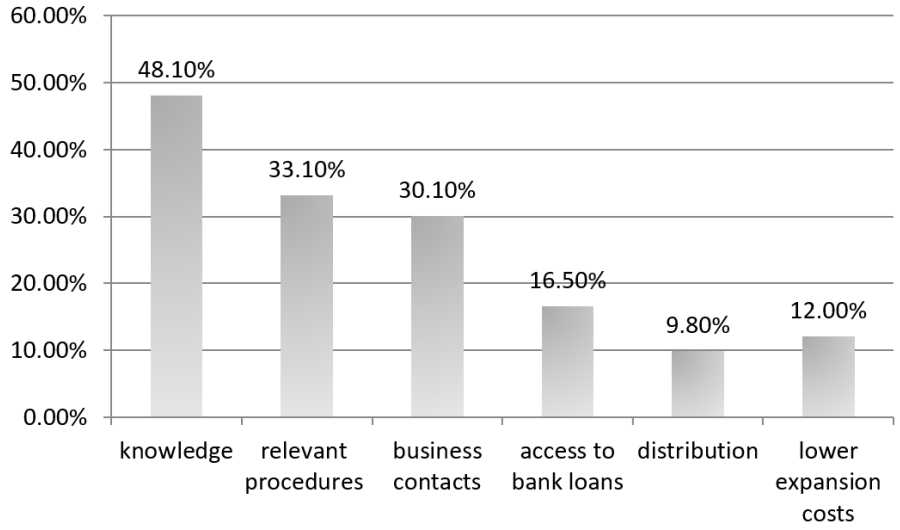

Fig. 3. Motivators which would encourage entrepreneurs from Malopolska Region to undertake cooperation in the international market
Source: Own research

Both for micro and for small enterprises, the most important factors which would motivate them to undertake cooperation in the international market would be: relevant expertise (micro: 51%, small: approx. 38%) and the knowledge of procedures (micro: over 30%, small: 47%).

From the presented data, it can be clearly seen that micro-enterprises more frequently point out to the general lack of expertise, because they find it difficult to specify what kind of knowledge they would need. On the other hand, small enterprises which have already acquired some experience in the international market or which are really trying to undertake activities related to internationalization can more precisely indicate that they lack the knowledge of the procedures (e.g., the legislation) which regulate the functioning of those markets they would like to enter.

Insufficient expertise, in particular with regard to basic knowledge, might be complemented by science and research institutions. Undoubtedly, entrepreneurs also need knowledge resulting from experience, which can be acquired from their business partners who have more experience in the international market or due to their own experience.

According to entrepreneurs, the most acute discrepancies are related to the availability of bank loans. Microenterprises find it more difficult to obtain a bank loan than the small ones, mostly due to the lack of credit history or the required collaterals as well as because of the so-called opacity of information, which, in banks' assessment, causes them to be perceived as more risky clients and results in rejecting their requests for loans by banks. Therefore, nearly 20% of the investigated micro-enterprises and less than 5% of small ones indicate loans as an important incentive for their potential expansion into foreign markets.

Both these groups of enterprises actively seek business contacts (micro: nearly 32%, small: 19%), which is justifiable as micro and small entities acting on an individual basis do not have sufficient resources (including resources in the form of knowledge arising from experience) to successfully expand into international markets.

Significantly smaller differences refer to the access to distribution channels (micro: 9%, small: approx. 14%), which, as mentioned above, is justifiable since a high percentage of entrepreneurs use digital tools to communicate with customers (Fig. 4)

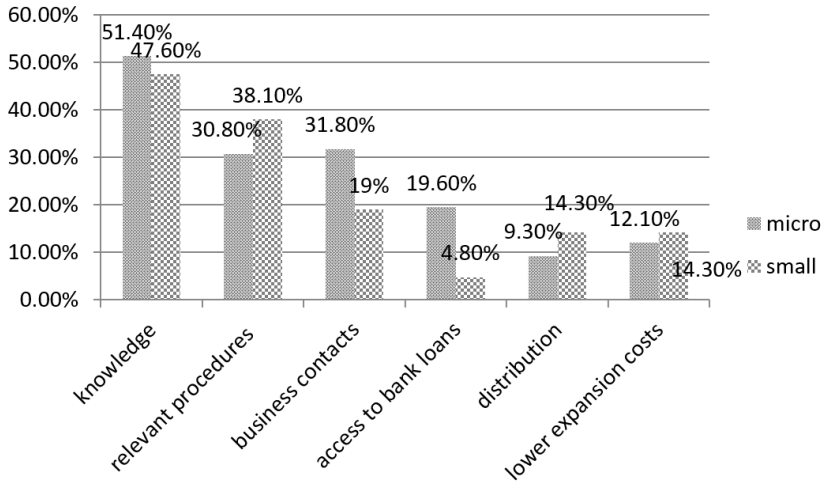

Fig. 4. The motivators which would encourage micro and small entrepreneurs from the Malopolska Region to undertake cooperation in the international market
Source: Own research

Entrepreneurs very often do not decide to enter international markets as they fear strong competition. Thus, they were asked about factors which in their opinion would increase their competitiveness on the international stage.

Again, the obtained responses reveal that knowledge seems to be a highly significant factor. In this case, the respondents indicated the access to information on innovations (48%).

This kind of knowledge can be complemented through collaboration at the science-business interface. Due to the fact that the research included micro and small entities, it is obvious that they are particularly interested in being provided with financial support in the form of tax incentives in connection with the implementation of innovations (over 52%) or easier access to external sources of financing (over 55%). It should be noted that entrepreneurs have started to be aware of the need for involvement in R&D. Over 14% of them pointed out to financial incentives or support for R&D activities as significant factors in achieving and maintaining the competitive advantage over their rivals in the international market (Fig. 5). Similarly, to Finland, this support can and should encourage entrepreneurs to initiate collaboration with scientific institutions, where a huge scientific and research potential is concentrated.

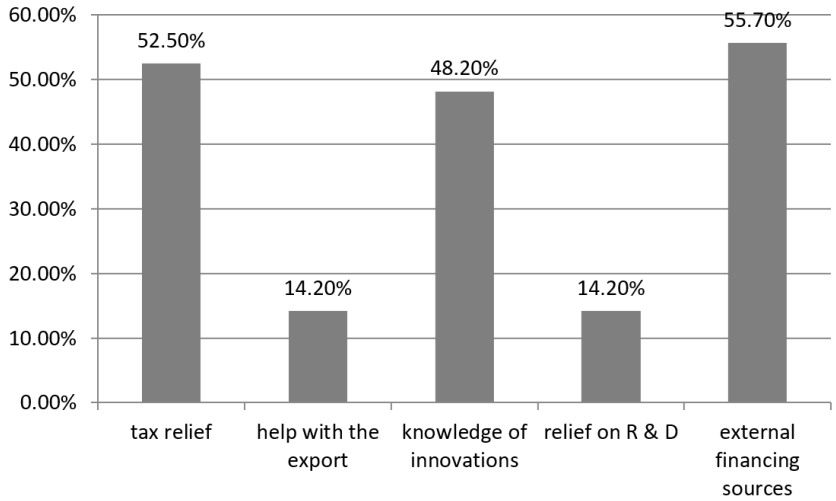

Fig. 5. Factors which would increase competitiveness of MMSE in international market, according to entrepreneurs from the Malopolska Region
Source: Own research

An analysis by the enterprise size has not revealed any significant differences between micro and small enterprises. Apart from tax incentives and easier access to external sources of financing, nearly a half of both the micro and small entrepreneurs think that the knowledge on innovations is a crucial factor which would enable them to achieve and maintain the competitive advantage over their rivals in the international market (Fig. 6).

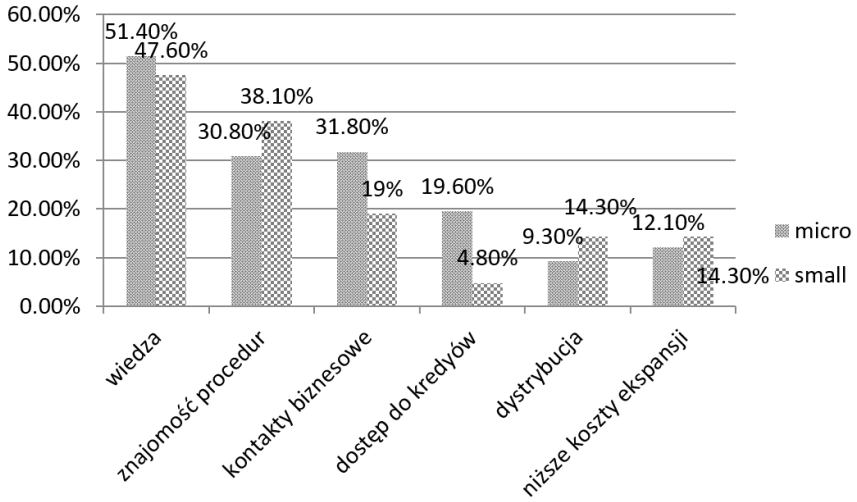

Fig. 6. Factors which would increase the competitiveness of MMSE in the international market, according to entrepreneurs from Malopolska Region
Source: Own research

5. Conclusions

Due to a very low degree of the internalization of micro and small enterprises, the aim of this chapter was to provide the answer to the question if micro and small enterprises are involved in collaboration with science and research institutions and to what extent. The basic premise for conducting such studies and analyses was the example of Finland, where the collaboration between companies and public universities is supported by the state. This policy brings about numerous advantages to entrepreneurs, who thereby get access to information resources on innovations, market research and internalization, as well as to universities by enabling them to commercialize their research.

On the basis of the research conducted in micro and small enterprises in the Malopolska Region, it can be concluded that they do not collaborate with universities in the field of joint research and development works. Moreover, a vast majority of them do not cooperate with business partners. This problem refers mostly to micro-enterprises. The presented findings have confirmed H1: the size of an enterprise has an influence on the intensity of cooperation with business partners, but does not affect the intensity of collaboration with science and research institutions. It has been shown that small enterprises are more likely to get involved in cooperation with other entities than micro-enterprises. This relationship does not concern the collaboration with science and research institutions. Neither of the two kinds of enterprises collaborate with science and research institutions.

Entrepreneurs have also indicated that, in order to intensify their activity on the international scene, they mostly need knowledge, business contacts and financial support, including co-financing of R&D works. It demonstrates that if similar solutions were implemented to those existing in Finland, where the state finances research and development works and the transfer of knowledge from universities to companies, it might contribute to complementing the lacking resources and, as a result, to an increase in the innovativeness and competitiveness of Polish MSE in the international market.

REFERENCES

[1] Baumol, W.J. (2002), *The Free-Market Innovation Machine*, Princeton University Press, Princeton New York, pp. 1-26.

[2] Blomstom, M., Kokko, A. (2003), *The Economics of Foreign Direct Investment Incentives*, NBER Working Paper 9489, NBER, Cambridge, pp. 1-26.

[3] Bower, J.D. (1993), *Successful Joint Ventures in Science Parks*, Long Range Planning 26 (6), pp. 114-120

[4] Da Silva P.A, Da Rocha A. (2001), Perception of Export Barriers to Mercosur by Brazilian Firms, Journal of International Financial Markets Rev, 18(6), pp. 589-609.

[5] Duda J., *Internacjonalizacja polskich mikro- i małych przedsiębiorstw w procesie integracji europejskiej i globalizacji*, Difin S.A., Warszawa, 2017, pp. 343.

[6] Eisenhardt, K.M., Martin, J. (2000), *Dynamic Capabilities: What are They*? Strategic Management Journal 21, pp. 1105-1121.

[7] Feller, I. (1990), *Universities as Engines of R&D Based Economic Growth: They Think they Can*, Research Policy, 19, pp. 335-340.

[8] Hagedoorn, J. (1993), *Understanding the Rationale of Strategic Technology Partnering: Interorganizational Modes of Cooperation and Sectoral Differences*, Strategic Management Journal 14, pp. 371-385.

[9] Hall, B.H., Link, A.N., Scott, J.Y., *Universities as research partners, Review of Economics and Statistics*, 85 (2), 2003, pp. 485-491.

[10] Hjerppe, R., Kiander. J. (red.), *Technology Policy and Knowledge-Based Growth in Small Countries*, VATT Research Reports 110, Helsinki, 2004, pp. 54-56.

[11] Jaffe, A. (1989), *Real Effects of Academic Research*, American Economic Review 79, pp. 957-970.

[12] Laursen, K., Salter, A. (2004), *Searching High and Low: what Types of Firms Use Universities as a Source of Innovation*, Research Policy 33, pp. 1201-1215.

[13] Leiponen, A. (2002), *Why do Firms Not Collaborate? The Role of Competencies and Technological Regimes*, [w:] Kleinknecht, A., Mohnen, P. (red.), *Innovation and Firm Performance, Econometric Explorations of Survey Data*, Palgrave, Hampshire, pp. 253-277.

[14] Mansfield, E. (1980), *Basic Research and Productivity Increase in Manufacturing*, American Economic Review, pp. 863-873.

[15] Mansfield, E. (1991), *Academic Research and Industrial Innovation*, Research Policy, pp. 1-12.

[16] Mansfield, E. (1995), *Academic Research Underlying Industrial Innovations: Sources. Characteristics and Financing*, The Review of Economics and Statistics, pp. 54-56

[17] Narin, F., Hamilton, K.S., Olivastro, D. (1997), *The Increasing Link Between U.S. Technology and Public Science*, Research Policy 26 (3), pp. 317-330.

[18] Nieminen, M., Kaukonen, E. (2001), *Universities and R&D Networking in a Knowledge-Based Economy. A glance at Finnish developments*, SITRA Reports Series 11, Helsinki, pp. 38-45.

[19] Nowak A., Węgrzyn M., *Nauka i Szkolnictwo Wyższe w województwie małopolskim*, Urząd Marszałkowski Województwa Małopolskiego, Departament Polityki Regionalnej, Kraków, 2017, p. 53.

[20] OECD, *Officially-supported Export Credits and Small Exporters*, Organization for Economic Co-operation and Development, Paris, France, 2003

[21] Santoro M.D., Gopalakrishnan S. (2000), *The Institutionalization of Knowledge Transfer Activities within Industry University Collaborative Ventures*, Journal of Engineering and Technology Management 17, pp. 299-319.

[22] Shaw V, Darroch J. (2004), *Barriers to Internationalization: A Study of Entrepreneurial New Ventures in New Zealand*, Journal of International Entrepreneurship, pp. 327-343.

[23] www.finland.trade.gov.pl

Cooperation Between Science and Business in Academic Education

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Keywords: Academic education, innovation, case study method

1. Introduction

Education may be understood as the all activities and processes allowing students to explore the world as well as to make them ready to change it and to shape own personality [1]. The aim of the academic education is not only to gain new knowledge and higher education but also to facilitate students to get job appropriate to the level and faculty of education. However, the precondition for appropriate job is to hold qualifications and skills responsive to the needs of economy and employers' demands. As noted rightly by Jeruszka [2] "the higher education and economy are two social spheres that are interrelated and mutually influential". On the one hand, economy, through the needs of the labour market, defines qualitative and quantitative demand for graduates from academic units and on the other hand higher education has vast impact on intellectual and social capital development, on economy productivity, competitiveness and efficiency. Progress and development in economy at each level, including regional one depends on the quality of academic education.

The quality in academic education is a complex and multi-faceted concept. In short, quality may be defined as satisfying requirements of a customer [3]. Two groups of customers are mentioned as regards academic education [4]: individuals, like students, and collective (group) comprising of social and economic environment of academic entities. This second group includes entrepreneurs that might be prospective employers.

Both students and employers have different requirement and pay attention to different elements, which is determined by various reasons [5]:

- students seek to gain knowledge useful for general and professional development. In addition, studies show that possibility to obtain accredited certificates, recognized professional qualifications, contacts with business environment are often decisive for the academic unit selection [6],
- while entrepreneurs mostly would like to attract employees qualified to apply theory into practice. Employers also appreciate so called "soft skills" like ability to cope with stressful situations, making decisions and taking responsibility for such decisions, creativity, flexibility in a changing, dynamic environment.

The education process should be organized in a manner to satisfy requirements of both groups of customers.

The aim of this chapter is to present an innovative didactic tool in the form of the online application of the case studies wizard, allowing students in the process of academic education:

- to increase the level of understanding the real economic processes,
- to better prepare for professional job,
- to strengthen relationships with business,

while in case of entrepreneurs:

- to receive support from an academic unit in solving current problems of a company,

- to acquire well-educated employees,
- to enhance cooperation with academic units.

2. Reasons for Creating Online Application of Case Studies Wizard

The creative potential of a student exploration, development and exposure require to stop transferring ready-made knowledge and to seek other methods to gain knowledge based on creative, independent cognitive activity, drawing on practical, real problems from the surrounding reality, mainly economic one. Students learn more efficiently if they see the acquired knowledge useful in future professional work. Well organized classes applying case study methods are used for verification of such knowledge and improve motivation.

A case study is one of activating methods, developing decision making abilities and helping to integrate theory with practice [7]. This method allows both students and academic teachers to acquire critical and analytical thinking skills. It influences the creativity and motivation to implementation of complex education objectives as well as more acute perception of opportunities and threats for proposed solutions. In addition, it teaches skilful argumentation and presentation of own ideas, and helps to build confidence to own skills.

2. Case study preparation According to studies by Skudiene [8], the case study method is the most effective didactic method which prepares for future career and develops practical skills useful in business because it allows students to look at business situations from various cultural and economic perspectives, to open their minds through giving opportunities to solve problems based on real problems. This method has become more and more popular thanks to that it is closely related to real life by analysing of real complex situations, where casual relationships between phenomena are revealed and their theoretical foundation are provided [9].

The methodology of case studies creation is not too complicated and usually consists of the following steps: [10]; [11]; [12]:

1. Case study design.

and processing.

3. Data analysis of a case study.
4. Determination of the consequences of activities, implications and recommendations [9].

In the first phase desired competences to be developed under discussion on a case study are determined and structured properly and at the end the formal aspect is considered as well. In the second phase data have to be collected and problem context of a case study is defined. In the next phase data analysis with use of relevant methods is performed. In the last phase one should concentrate on study of the consequences of activities and solutions applicability.

In order to have a good case study, access to real and the best current data is required, therefore participation of companies is of key importance. Necessity to obtain information from economic environment is the major difficulty in a case study creation [9].

Among the other things this is due to cooperation between academic units and business is usually very poor [13], [14]. This leads to the statement that new didactic tools using advanced IT technologies, supporting creation and application of a case study in a manner allowing for enhancement of relationships between business and academic units in students' education are needed. Such an innovative tool is the online application of the case studies wizard as the new form of cooperation between economic world and academic units.

The basic task for the case studies wizard is to allow exchange of information between entrepreneurs and academic units in the following scope [15]:

- reporting problems by entrepreneurs to be solved by academic teachers and students,
- making solutions for reported problems available to entrepreneurs,

- making solutions developed in a form of case study available to students and academic teachers to be used during the education process,
- entering into relationships with entrepreneurs by academic teachers and students.

3. Architecture of Online Application of Case Studies Wizard

The application of the case studies wizard is based on the classic web-based design template defined as MVC architecture (*Model-View-Controller*). It consists of three layers [16]:

- model layer, which represents information on which application operates (business logic).
- view layer, which transforms model (information) into the web page form convenient to interact with the users.
- controller layer, which responds to the user's activity and manages respective modifications.

Main functionality of the application is presented in Fig. 1. The wizard allows creating (as well viewing) a case study solution in a form of multistep process according to the defined methodology. The case study structure includes eleven elements. These are: preface (introduction), objective, abstract, environment, problems, main players and their roles, problem risks, problem solving variants, SWOT/PEST analysis, conclusions.

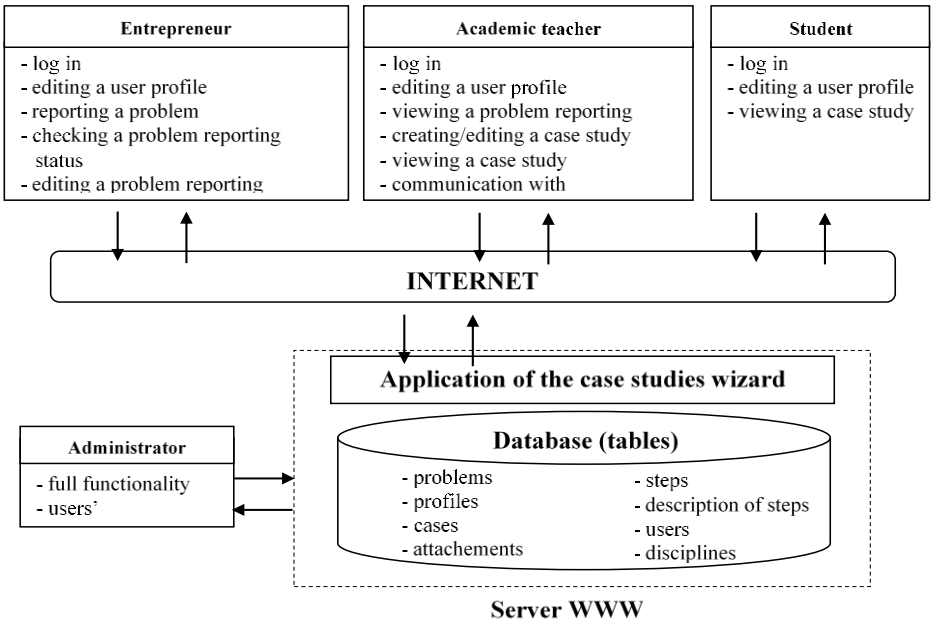

Fig. 1. Functional architecture of the case studies wizard
Source: [15]

It is also possible to attach additional components in a form of files. Each step of creation (modification) allows adding any content (text, graphics, etc.) as well as to follow prompts helping in using the wizard. After a case study is created (validated), developed solution is available in the entrepreneur system and may be used repeatedly by both academic teachers and students to explore relevant content from didactic programs. Shared case study can not only be viewed in the wizard but also generated in a form of a single document, made available in PDF format.

4. Conclusions

Presented online application of the case studies wizard allows to obtain multilateral benefits. This is a solution by which academic education may proceed in conditions as close as possible to reality, thanks to which graduates with practical knowledge will supply labour market, for the benefit of employers. At the same time, it allows entrepreneurs to present their own problems and waiting for support from academic teachers and students in their solution.

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REFERENCES

[1] Petrozolin-Skowrońska, B. (ed) (1998). Nowa encyklopedia powszechna PWN. Tom 3, Wydawnictwo PWN, Warszawa.
[2] Jeruszka, U. (2011). Efektywność kształcenia w szkołach wyższych. Polityka Społeczna 1, pp. 1-7.
[3] Oakland, J. (2000). Total Quality Management. Butterworth Heinemann, London.
[4] Bąk, G. (2000). Jakość organizacji edukacyjnej – podejście systemowe (in:) Kruszewski T. (ed) Jakość kształcenia w perspektywie wejścia Polski do Unii Europejskiej. Wydawnictwo Naukowe NOVUM, Płock, pp. 53-54.
[5] Bakonyi, J. (2012). Doskonalenie jakości kształcenia szkoły wyższej jako organizacji uczącej się w świetle wymogów krajowych ram kwalifikacji. Zeszyty Naukowe Wyższej Szkoły Humanitas 2, pp. 199-206.
[6] Fazlagić, J. (2012). Kapitał intelektualny szkoły wyższej z perspektywy studentów. e-mentor 45, pp. 77-85.
[7] Okoń, W. (1998). Wprowadzenie do dydaktyki ogólnej, PWN, Warszawa.
[8] Skudiene, V. (2005). The relationship between teaching methods and educational objectives in management and business administration education. Profesinis rengimas. Tyrimai ir realijos. Kaunas: VDU 9, p. 106-121.
[9] Ammerman, P., Gaweł, A., Pietrzykowski, M., Rauktienė, R., Williamson T. (eds.), (2012). Metoda studium przypadku w edukacji biznesowej. Bogucki Wydawnictwo Naukowe, Poznań.
[10] Yin, R. (1994). Case study research: Design and methods. Sage Publishing, Thousand Oaks, CA.
[11] Lynn, L.E. (1999). Teaching and Learning with Cases: A Guidebook. Seven Bridges Press, Chappaqua, NY.
[12] Neale, P., Thapa, S., Boyce, C. (2006). Preparing a Case Study: A Guide for Designing and Conducting a Case Study for Evaluation Input. Pathfinder International Tool Series. Monitoring and Evaluation 1.
[13] Kilian-Kowerko, K. (2013). Bariery komercjalizacji prac badawczych w Polsce. e-mentor 4(51), pp. 27-31.
[14] Tomczyk, M. (2012). Bariery transferu technologii pomiędzy nauką a biznesem, Ekonomika I Organizacja Przedsiębiorstwa 7, pp. 3-12.
[15] Nermend, K., Piwowarski, M., Policastro, P. (2013). The Szczecin Web Application 'Case-Study Creator' from management to Legal Education and Training (in:) Policastro P. (ed) Towards innovation in legal education. Eleven International Publishing, Hague, pp. 97-107.
[16] Gajda, W. (2010). PHP, MySQL i MVC. Tworzenie witryn WWW opartych na bazie danych, Helion, Gliwice.

Open Innovation in Interorganizational Cooperation: Case of Hackathons in Museums

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Keywords: Open Innovation, Museums, Inter-organizational Project

1. Introduction

In a complex environment, organizational boundaries get blurred in knowledge generation.

Open Innovation (OI) is identified as a method for creating business-models to benefit various interest groups [1]. OI is defined as "a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model" [2]. However, two concepts of innovation involving external sources dominate the literature: Open Innovation and User Innovation. Though both concepts are sometimes used synonymously, others [2] for clear distinctions. While Open Innovation, a term coined by Chesbrough, involves external sources that are motivated by monetary incentives, with private governance of the innovation, User Innovation, a term attributed to Von Hippel, has a focus on open source models, thus collective governance, where users get involved based on social and self-use motivation [3], with both concepts integratable into coupled models.

Crossing boundaries of organizations is also increasingly common in projects.

Interorganizational projects (IOPs) are becoming more usual as a temporary form of work [4], [5]. An often cited definition states "Inter-organizational projects involve two or more organizational actors from distinct organizations working jointly to create a tangible product/service in a limited period of time" [6]. Crossing organizational boundaries poses challenges to practices deviating from those in the individual organizations, like roles and hierarchies [4] and differing personal identities [7]. Using external sources for innovation processes in interorganizational projects adds further complexity, with alignment across organizations being a major challenge. This chapter explores the use of open innovation initiatives in three case studies involved in an interorganizational, international project and investigates the related challenges experienced in the case studies.

2. Motivation, Aim, and Methodology of Study

Ten years of cooperation in interorganizational, multi-national projects on digitalization in the tourism sector provided insights into working processes to the authors. Museums are particularly interesting, as their perception changes from conserving responsibilities towards edutainment, thus increasing public interaction [8]. The environment of museums gets more competitive, with smart innovation being the basis for "competitive parity" [9]. In a recent project, an event format – the hackathon – was implemented as an ideation tool to develop new IT enabled services for the museums, providing gamified electronic guided services.

Adopting the role of knowledge facilitator in the project [10] put the researchers into a position comparable to ethnographic research designs, however, not directly involved in the event organization, but in responsibility for generating and sharing learnings within the

project consortium and beyond. In this position, the aim was to understand both the learning about tailoring an open innovation event format to museums' needs as well as the processes framing such event, considering the specifics of international IOPs. Following an interpretive paradigm, the research aims to gain understanding from an inductive, qualitative approach [11] to explore open innovation in an interorganizational project context. A case study strategy was chosen as the phenomenon is unique and complex, and the study aims to answer how- and why-questions [12]. For the sample, three cases were chosen from one interorganizational project, describing two open innovation events. One event was jointly hosted by two institutions. As both followed their individual organizational goals, these were treated as two separate cases. Working with a virtual team, a mixed method was applied with synchronous and asynchronous data collection. In a first step, input for learnings from the event were collected from the group online in an asynchronous setting. This input was then structured and categorized by the researchers. Based on this initial reflection, semi-structured interviews were conducted online with each institution individually to further enhance the lessons learned collected in step one. In addition, a live group discussion was held during a project meeting.

3. Findings and Discussion

Hackathons are events of "tournament-based crowdsourcing for technical solutions" [3] in an open innovation approach. Thus, the case study events can be considered part of an open innovation approach. The results from the hackathons should serve the whole international project consortium. Hackathons are also called "jump start for innovation" [13]. For the hackathons in the case studies, people from the public were invited to the museums. By attracting external knowledge to the public institutions, the case study museums followed an outside-in innovation model [14], [15]. All case study museums were very experienced in organizing public events, however, none of them had organized a hackathon before, nor were open innovation approaches part of their organizations' strategy. Realizing the events was motivated by being part of the IOP consortium and the related agreements that regulated which partners had to conduct such event. The hackathon format was tailored to the institutions, over one day in length and accompanied by a separate warm-up session in case 1 and 2 (Table 1).

Table 1. Characteristics of Open Innovation events in case study institutions

	Case 1	**Case 2**	**Case 3**
Event format	Hackathon of 29 h with warm-up	Hackathon of 29 h with warm-up	Hackathon of 30 h
Hackathon Teams	• Students and professionals • Mainly Programmers and Designers	• Students and professionals • Mainly Programmers and Designers	• Students, professionals, companies • Mainly programmers

Table 1. Characteristics of Open Innovation events in case study institutions (continuation)

Involvement of organizers	• Mentors • Organisation Team	• Mentors • Organisation Team • Host of location	• Mentors • Organisation Team • Host of location
Visitor needs	Available study	Available study	No
Visitor feedback	No	No	No
Briefing of participants	• App with a game • Highlighted problems in the museum	• App with gamification elements • Highlighted problems and asked to solve • Provided own ideas for solutions during the warmup	• Presented diverse topics and problems • Topics already contained solution proposals

Accepted results in terms and conditions	Ideas, code or ready solutions	Ideas, code or ready solutions	Ideas, code or ready solutions
Expectations	Ideas	Prototype	Prototype

Source: own illustration based on interviews with case study institutions

The teams taking part were mainly registering as a group, with museum staff not involved in the teams, but consulting them as mentors. Visitors were not directly involved, though visitor studies were provided in two cases. The briefing of the participants was done individually by each institution. In all cases, problems of the museums were presented, in two cases even the museums' own ideas for solutions were named beforehand.

During the process of analysing learnings in the individual case study interviews, the consideration of the hackathons as one-off events became apparent. The focus had been on the smooth organization of this new form of event with proper infrastructure and the attraction of a new target group. In reflecting the results during the interviews, it turned out, that the satisfaction with the event format and organization as such was high, however, the satisfaction with the results of the content produced was indefinite

Table 2). Although the terms and conditions for the events regulated that both ideas, code or full solutions would be accepted during the event competition, the expectations of the museums ranged from ideas to full prototypes. During the reflection process, two main issues regarding the outcome of the hackathons prevailed: the perceived limited creativity and the perceived limited direct applicability to the museum and the project.

3.1. Issue 1: Perceived Limited Creativity

The first point was, that solutions were too similar on the one hand or too fragmented on the other hand and lacked innovative character

Table **2**). This issue was also observed in other museum hackathons, although those were of a different format with more technology provided, longer sessions and visitor tests [8].

Table 2. Evaluation of results from Open Innovation events by case study institutions

	Case 1	**Case 2**	**Case 3**
Scope	Similar solutions	Similar solutions	Very fragmented
Innovativeness	Some	Low	Low
New ideas	Some	Few	Few
Usable for further project	Some	Limited	Limited
Ready to implement	Some	No	No

Source: own illustration based on interviews with case study institutions

Possible explanations are the briefing, team setup and user involvement.

Providing the topic for the hackathon seems a critical issue. The tension of formulating a task broad enough to inspire creativity, but still focused to gain usable results, needs to be balanced. Earlier studies found, that looking at former solutions limits participants' creativity [8]. Considering in the case studies, that in some briefings not only narrow problems were presented but even solutions suggested, participants were influenced. Additionally, the time constraint can cause participants to stick with the first idea found during brainstorming [8], to being able to develop that idea into a presentable solution for the jury presentation. So, enhancing the brainstorming aspect both in event setup and in own expectations could increase the creative output.

Although in another study of hackathons, the chosen there six different team roles limited the recruitment of participants [8], multi-disciplinary teams are recommended for creative

processes [16], [17]. While in the case studies, some teams had programmers and designers, museum staff stayed as mentors outside the teams and visitors were not involved at all. By providing visitor data in case 1 and 2, the used method was only partly user-centered, but it was not participatory [16], although [9] specifically argue for user involvement into museum innovation. In general, involving the end user into innovation processes to turn an idea into an innovation is recommended [15], [18]. This might have reduced the creative potential, both related to the variety of ideas and to the learning of museum staff from the creative process.

3.2. Issue 2: Perceived Limited Applicability

The second major point mentioned was the lacking applicability of the gained ideas after the event. This can be related to the differing expectations. Those looking for ideas were finding some implementable results (case 1). Those expecting a prototype were not finding solutions ready to implement (case 2 and 3). In an IOP gaining a joint understanding of expectations seems to be a challenge, in addition to the case study's project management (PM) environment and limited process view of open innovation.

The case study IOP has a specific linear lifecycle owed to public funding regulations [19], causing a focus of the IOP partners on implementation of agreed activities with limited flexibility in later project stages. This plan-driven approach could explain the limited discussion of potential benefits of each open innovation ideation event in the case studies.

Open innovation processes lack predictability, where agile and hybrid approaches to PM, even adopted in traditional PM standards [20], could be of potential benefit.

In the case studies, the focus was on the hackathons as one-off events. OI models, however, point to a process view, with ideation being only one step. An exemplary OI process model (Fig. 1) starts with a definition and ends with the leveraging of the ideation outcomes.

The definition and the exploitation phase of OI seem to be less in focus in the case studies.

For the definition phase, linking the single OI action such as a hackathon to the individual organisation's and the IOPs strategy, could help to direct the activity for providing useful results. In general, a lack of linking open innovation to strategy was found in theory [21], stressing that strategic framing would help to implement useful OI actions. Additionally, considering the desired end benefit of the OI process and the means of exploitation of OI results already in the definition phase could help to define appropriate selection criteria, OI target groups and OI tools.

Fig. 1. Process for coupled open innovation projects [3]

4. Conclusion, Limitations and Further Research

Open innovation approaches in public institutions are a challenging task. Implementing such methods in an interorganizational project consortium adds complexity by impeding strategic alignment. The unpredictable aspect coming from OI initiatives seems to conflict with an environment of traditional, plan-driven PM. The restrictive contract-based project definition was one reason for the partners focusing on the implementation of the hackathons as one-off OI events, rather than adopting a process view. This resulted into very good event realization, though limited satisfaction with the results achieved. Therefore, a model for an OI process in an IOP should be developed, starting with the IOP's and the partner organizations' strategy. Open innovation approaches have potential for public services [22], but implementing such methods needs time to learn [21]. The study cannot be generalized due to

the limited amount of case studies involved, but provides hints on the challenges coming with open innovation approaches in museum cooperation projects. Future research should develop a specific process model for open innovation in IOPs and test such model in a real-life environment for applicability and satisfaction of several stakeholder groups.

REFERENCES

[1] Nonaka, I. (2014). Foreword: Open Innovation and Knowledge Creation. In: Chesbrough, H., Vanhaverbeke, W., and West, J. (eds.) New Frontiers in Open Innovation, Oxford University Press, Oxford, pp. 5-7.

[2] Chesbrough, H., Bogers, M. (2014). Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation. In: Chesbrough, H., Vanhaverbeke, W., and West, J. (eds.) New Frontiers in Open Innovation, Oxford University Press, Oxford, pp. 3-28.

[3] Piller, F., West, J. (2014). Firms, Users, and Innovation: An Interactive Model of Coupled Open Innovation. In: Chesbrough, H., Vanhaverbeke, W., and West, J. (eds.) New Frontiers in Open Innovation, Oxford University Press, Oxford, pp. 29-49.

[4] Sydow, J., Braun, T. (2018). Projects as temporary organizations: An agenda for further theorizing the interorganizational dimension. International Journal of Project Management, 36 (1), pp. 4-11.

[5] von Danwitz, S.: Managing inter-firm projects: A systematic review and directions for future research. International Journal of Project Management, 36 (3), pp. 525-541.

[6] Jones, C., Lichtenstein, B.B. (2008). Temporary Inter-organizational Projects. In: The Oxford Handbook of Inter-Organizational Relations. Oxford University Press.

[7] DeFillippi, R., Sydow, J. (2016). Project Networks: Governance Choices and Paradoxical Tensions. Project Management Journal, 47 (5), pp. 1-12.

[8] Rey, S. (2017). Museomix: Lessons learned from an open creative hackathon in museums. CEUR Workshop Proceedings, 1861, pp. 24-28.

[9] Della Corte, V., Aria, M., Del Gaudio, G. (2017). Smart, open, user innovation and competitive advantage: a model for museums and heritage sites. Museum Management and Curatorship, 32 (1), pp. 50-79.

[10] Marx, S. (2018). Knowledge management in Interreg cross-border cooperation: A project perspective. SIMAT Arbeitspapiere No. 10-18-032, Hochschule Stralsund, Stralsund Information Management Team (SIMAT): Stralsund.

[11] Saunders, M., Lewis, P., Thornhill, A. (2009). Research Methods for Business Students, ed. 9. Pearson Education, Harlow.

[12] Yin, R.K.: Case Study Reserach – Design and Methods. SAGE Publications, Thousand Oaks (2006).

[13] Leclair, P. (2015). Hackathons: A Jump Start for Innovation. Public Manager, 44 (1), pp. 12-14.

[14] Vanhaverbeke, W., Chesbrough, H. (2014). A Classification of Open Innovation and Open Business Models. In: Chesbrough, H., Vanhaverbeke, W., and West, J. (eds.) New Frontiers in Open Innovation, Oxford University Press, Oxford, pp. 50-70.

[15] European Commission. (2016). EU Open Innovation, Open Science, Open to the World.

[16] McDermott, F., Maye, L., Avram, G. (2014). Co-designing a Collaborative Platform with Cultural Heritage Professionals. Irish Human Computer Interaction Conference, pp. 18-24.

[17] Roussou, M., Pujol, L., Katifori, A., Perry, S., Vayanou, M. (2015). The museum as digital storyteller: Collaborative participatory creation of interactive digital experiences. MW2015: Museums and the Web.

[18] Harhoff, D. (2016). Context, Capabilities, and Incentives – The Core and the Periphery of User Innovation. In: Harhoff, D. and Lakhani, K.R. (eds.) Revolutionizing Innovation, Massachusetts Institute of Technology, Cambridge, pp. 27-44.

[19] Marx, S. (2017). Project management practice in Interreg projects: Reflective analysis and recommendations. SIMAT Arbeitspapiere, No. 09-17-031. Hochschule Stralsund, Stralsund Information Management Team (SIMAT): Stralsund.

[20] Klotz, M., Marx, S. (2018). Projektmanagement-Normen und-Standards. SIMAT Arbeitspapiere, No. 10-18-033. Hochschule Stralsund, Stralsund Information Management Team (SIMAT): Stralsund.
[21] Vanhaverbeke, W., Cloodt, M. (2014). Theories of the Firm and Open Innovation. In: Chesbrough, H., Vanhaverbeke, W., and West, J. (eds.) New Frontiers in Open Innovation. pp. 256-280. Oxford University Press, Oxford.
[22] Tidd, J., Bessant, J. (2018). Innovation Management Challenges: From fads to fundamentals. International Journal of Innovation Management 22(5).

Business Development in Turbulent Environment. Context of Corporate Organizational Culture

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1. Introduction

The economic and social development of countries, economies and regions is subject to how companies cope with modern challenges, most of all innovativeness, competitiveness and continual technological progress. Market success or failure is determined by whether this interrelationship is recognized and then adequately addressed to by enterprises. Adapting to new and demanding conditions is not an easy task. The truth of this fact is visible in economic life, where the dynamic and turbulent environment impels constant changes, unending enhancement and searching for brand new solutions. Thus, the precondition, although not the only one, to gain a competitive advantage in the market is to decide on the appropriate direction of development.

The beginning of the new millennium has brought monumental changes. The globalization of business activities has an immense influence on the possibilities to adapt to fast changing playing rules, and as a consequence, on the chances of gaining and maintaining a competitive advantage. Therefore, the gap between the income level and economic expenditure tends to grow bigger among regions and within them, and the costs of maintaining social cohesion increase as well. Abrupt technological changes and more effective use of knowledge offer new opportunities for local and regional development, however, require from companies' continual investment, workforce revamping and production redeveloping as well as more advanced expertise. Facing such changes and unsteady situations, regions, and as a result organization too, are still expanding choosing diverse roads to development. Considering the macro level – some regions handle all this quite well and spur growth. Others are less successful in gaining market share and attracting additional types of business activity.

Taking into account the micro level, there are also noticeable intense technological changes in the business competitive environment (alike in the macro-environment), which force companies' managements to modify their attitude to the surrounding situation. It is of great importance to keep track of how the sector in which a given company operates is developing. Otherwise, its products and services are likely to become uncompetitive or even outdated, which may have a negative impact on the company survival in the turbulent market.

2. Methodology of Research

In order to gain more insight into the issues connected with the directions of changes modern companies choose and to verify the research hypothesis there was carried out a survey of 313 part-time students working for commercial companies and administration entities.

The respondents' answers to the question: "Based on the information you have, do you think your company takes on any actions to monitor the situation in its environment?" – were quite similar ($p>0.05$), regardless of the average employment period in the company, the

respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.79, while the median was 4, so the response meant "rather yes". That is why, it seems justifiable to present how the management staff responded to the said question. Testing the hypothesis concerning the correlation between monitoring of the said environment and the actual state of affairs helps to reveal important statistical results which are shown in Table 1.

Table 1. Hypothesis testing

Hypothesis	***Pearson's correlation coefficient***	**State of affairs**
1	.254**	Competition in the sector is big,
2	.244**	Technological changes in the environment are dynamic,
3	.175**	The company is greatly affected by the macro-environment.

** – correlation is significant at the level of 0.05 (reciprocally)*
*** – correlation is significant at the level of 0.01 (reciprocally)*
Source: the author's study

The analysis of the results proves that the more changeable the environment is, especially the competitive one (hypothesis No. 1), the more frequent environment monitoring activities of this company become. In case of hypothesis No. 2, suggesting correlation between dynamic technological changes and more intense environment monitoring activities, the results were quite alike. The correlation seems weaker in case of testing hypothesis No. 3, relating to the impact of considerable changes in the macro-environment on the said scanning activities.

Studying the response distribution concerning the most crucial directions of the companies' development led the author to the following results: the responses to the question about what the respondents considered the most important current direction of activities of their company – meeting customers' demands – do not differ significantly ($p>0.05$), regardless of the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 4.29, while the median was 5, so the response was "definitely yes". In case of the main business line of the companies the differences are really significant ($p<0.01$). The responses to the question about what the respondents considered the most important current direction of activities of their company – making their activities more flexible – do not differ significantly ($p>0.05$), regardless of the sector the companies operate in, the average employment period and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.61, while the median was 3, so the response was 'I have no opinion'. In case of the respondents' qualifications the differences are really significant ($p<0.01$) and the results are higher in the groups of highly educated people. The responses to the question about what the respondents considered the most important current direction of activities of their company – long-term profit orientation – do not differ significantly ($p>0.05$), regardless of the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.88, while the median was 4, so the response was 'rather yes'. In case of the average employment there were noticed significant differences ($p=0.0136$), in other words the results were higher in the companies with the higher level of employment. The responses to the question about what the respondents considered the most important current direction of activities of their company – short-term profit orientation – do

not differ significantly (*p>0.05*), regardless of the respondents' qualifications. In general, the average level of assessment, or in other words the response to this question, was 3.36, while the median was 3, so the response was 'I have no opinion'. In case of the main business line the differences are really significant (*p<0.01*), and the highest results are noticed in the construction companies. Whereas, in case of the positions held the differences are significant (*p<0.0144*) and the lowest results are among the management staff. The responses to the question about what the respondents considered the most important current direction of activities of their company – the company size maximization – do not differ significantly (*p>0.05*), regardless of the sector the companies operate in, the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.32, while the median was 3, so the response was 'I have no opinion'. The responses to the question about what the respondents considered the most important current direction of activities of their company – the product/service quality orientation – do not differ significantly (*p>0.05*), regardless of the sector the companies operate in, the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.67 while the median was 4, so the response was 'rather yes'. The responses to the question about what the respondents considered the most important current direction of activities of their company – the growth of innovativeness – do not differ significantly (*p>0.05*), regardless of the sector the companies operate in, the average employment period and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.54 while the median was 3, so the response was 'I have no opinion'. The responses to the question about what the respondents considered the most important current direction of activities of their company the growth of the value of the company brand – do not differ significantly (*p>0.05*), regardless of the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.81 while the median was 4, so the response was 'rather yes'. In case of the main business line of the companies the differences were significant (*p<0.05*) with the lowest results in the group of public administration employees (which, in case of such type of entities, is casually logical but contrary to the fundamentals and requirements of pro-marketing orientation – also in these institutions). The responses to the question about what the respondents considered the most important current direction of activities of their company – achieving sustainable profitability – do not differ significantly (*p>0.05*), regardless of the sector the companies operate in, the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words the response to this question, was 3.65, while the median was 3, so the response was 'I have no opinion'. The responses to the question about what the respondents considered the most important current direction of activities of their company – running business respecting the rules of social responsibility – do not differ significantly (*p>0.05*), regardless of the sector the companies operate in, the average employment period, the respondents' qualifications and the positions held. In general, the average level of assessment, or in other words, the response to this question, was 3.43, while the median was 3, so the response was 'I have no opinion'. The results of studying correlation between external environment monitoring and the most important current directions of activities undertaken by the companies are presented in Table 2.

Table 2. Hypothesis testing

Hypothesis	*Pearson's correlation coefficient*	The most important current directions of the company's activities
1	.248**	meeting customers' demands,
2	.283**	making the company's activities more flexible,
3	.215**	long-term profit orientation,
4	.055	short-term profit orientation,
5	.266**	the company size maximization,
6	.241**	product/service quality orientation,
7	.214**	growth of innovativeness,
8	.351**	growth of the value of the company brand,
9	.325**	achieving sustainable profitability,
10	.111	running business respecting the rules of social responsibility.

** – correlation is significant at the level of 0.05 (reciprocally)*
*** – correlation is significant at the level of 0.01 (reciprocally)*
Source: the author's study

The conclusions one may draw from the analysis of the results are that the more willing to undertake environment monitoring activities the managements are the more seriously they treat the directions of their companies' development, which are determined by the challenges of the modern world, i.e., the growth of the value of the company's brand, achieving proper level of profitability, meeting customers' demands and enhancing flexibility. The growth of innovativeness and short-term profit orientation are regarded as less important.

A considerable statistical correlation was observed between monitoring customers' satisfaction and crucial directions of activities. These correlations are shown in Table 3.

Table 3. Hypothesis testing

Hypothesis	*Pearson's correlation coefficient*	The most important current directions of the company's activities
1	.197**	meeting customers' demands,
2	.254**	making the company's activities more flexible,
3	.092	long-term profit orientation,
4	-.037	short-term profit orientation,
5	.174**	the company size maximization,
6	.176**	product/service quality orientation,
7	.191**	growth of innovativeness,
8	.293**	growth of the value of the company brand,
9	.187**	achieving sustainable profitability,
10	.132*	running business respecting the rules of social responsibility.

** – correlation is significant at the level of 0.05 (reciprocally)*
*** – correlation is significant at the level of 0.01 (reciprocally)*
Source: the author's study

The analysis of the results proves that the activities undertaken to monitor customers' satisfaction are closely connected with the choice of direction of the company development as regards the growth of the value of the company brand, enhancing flexibility of its activities and meeting customers' demands.

Having examined correlation between methodical acquisition of information about the market from various sources and the most important directions of activities the author can present significant statistical correlations in Table 4.

Table 4. Hypothesis testing

Hypothesis	***Pearson's correlation coefficient***	**The most important current directions of the company's activities**
1	.194**	meeting customers' demands,
2	.206**	making the company's activities more flexible,
3	.054	long-term profit orientation,
4	-.020	short-term profit orientation,
5	.080	the company size maximization,
6	.215**	product/service quality orientation,
7	.125*	growth of innovativeness,
8	.237**	growth of the value of the company brand,
9	.258**	achieving sustainable profitability,
10	.198**	running business respecting the rules of social responsibility.

** – correlation is significant at the level of 0.05 (reciprocally)*
*** – correlation is significant at the level of 0.01 (reciprocally)*
Source: the author's study

The analysis of the respondents' response implies the following correlation: the growth of methodical acquisition of market information by the entities in question affects the choice of the direction of development concerning the achievement of sustainable profitability, the growth of the value of the company's brand, meeting customers' demands, enhancing flexibility and quality improvement.

3. Directions of Development Pursued by Modern Companies

Summing up the obtained results – the directions of development should without doubt be dictated by the objective to meet customers' demands – they may cover enhancement of processes and securing proper quality of products and services. In this context the most crucial element is how the business process is handled, because it comprises a specific set of actions defined for a given company and its end result is to meet customers' demands. It is about planning and organizing tasks so that they could be carried out most effectively and efficiently. The outcome of assigning the responsibility for this field to employees is best visible during analysis of financial performance of companies. What also matters is how employees perceive one another, whether companies become more flexible in their activities and present a desired level of organizational culture. In this context, the current primary directions of development should match the culture of an organization. The barriers of cultural character may determine the success of a defined growth strategy path. Thriving of companies may depend on whether their employees think, feel and behave the same way.

According to G. Hofstede the culture of organization is one of its kind assets of a company, thanks to which one may foresee its financial standing in the next five years. On the basis of their research, A. Adamska, M. Maczka and A. Ludynia claim that the fundamental condition to create and maintain the inventive atmosphere (culture) in an organization is to make a wide group of employees (coworkers) join in the process of strategy implementation and to share ideas and information with them. The process of strategy formulation basically involves identification and analysis of external environment factors, companies' own resources and

expectations of various interest groups. 'The attitude of employees to their duties and responsibilities start to change when organizations offer full participation in them. The possibility of partial profit sharing brings about a change in the way employees treat their place of work – they begin to think of it as the owners of companies since their interests become the interests of managements. This makes for increasing motivation to improve the quality and effectiveness of activities because people employed in companies notice personal benefits in making greater effort'.

For this reason, organizational culture is based on some specific and primary premises, which should be shared by all members of an organization (however, in practice they are respected only by some). These are special unwritten rules which employees follow (often not fully realizing it). The 'principles and rules of acting within an organization' are considered natural and obvious and thus determine the way this company is perceived by the environment and its own members. This set of principles and rules will work out for the benefit of companies if it is acceptable to most employees. Studying the impact of culture on the choice of directions of development, it must be emphasized, that considering the nature and character of organizational culture (its clarity and 'penetration' through various aspects of organizations' operation), the change of direction in companies' development, which will be functioning outside the domain defined by this culture, will be a strenuous task. Managements will be inclined to decide on methods enabling more effective implementation of existing strategic decisions. As a result, the said change will be rather incremental and emergent and not revolutionary. It is vital that taking the trouble to analyse culture, managements will be convinced about the role culture could play to improve strategic capabilities of their companies. Identifying and gaining an understanding of the function of organizational culture in modern companies make for the optimal strategy formulation at all the hierarchical levels.

However, it should be remembered that organizational culture may not only support and efficiently stimulate the process of strategic planning but also hinder strategic progress.

The change of direction in companies' development does not happen very often. As K. Olejczyk-Kita proves in her research – backing it up with the surveys conducted in the group of service enterprises and concerning changes introduced in them – the incidence of change implementation is quite low. According to the respondents: companies do not change frequently. The overwhelming majority, more than 91%, declared that changes of direction in the development of their companies were rare. Citing interesting results of the research carried out by the above-mentioned author: 'Only one enterprise defined the changes in its operation as frequent'. It must be stressed, however, that this company was bracing for a considerable expansion of its activities, thus the answer could have been dictated by this change. Considering implementation of changes in a company and their effect on this company's flexibility, one should realize that what is important is not only their frequency but also the domain they will cover. In most of the surveyed companies (57%) the changes introduced in them are in fact slight and surface modifications. In reality, they are not any transformations enabling improvement of flexibility. Almost all the remaining enterprises (41%) declared that the planned changes would involve only a part of their organization. The only company declaring a significant change was the above-mentioned service company, which was planning its expansion.

REFERENCES

[1] Adamska K., Mączka M., Ludynia A., *Potencjał twórczy organizacji – narzędzie diagnostyczne,* [in:] Popek S., Bernacka R., Domański C. (eds.), *Psychologia twórczości. Nowe horyzonty*, Wydawnictwo UMCS, Lublin 2009.

[2] Bławat A., Drobny A., *Dialog organizacyjny*, Wydawnictwo Wolters Kluwer Polska, Warszawa 2011.

[3] Hofstede G., Hofstede G.J., *Kultury i organizacje*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2007.

[4] Hofstede G., *Kultury i organizacje*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2000.

[5] Nowodziński P., *Zarządzanie strategiczne współczesnym przedsiębiorstwem. Otoczenie a strategia,* Sekcja Wydawnictw Wydziału Zarządzania Politechniki Częstochowskiej, Częstochowa 2013.

[6] Stabryła A., Małkus T. (eds.), *Strategie rozwoju organizacji*, Wydawnictwo *mFiles*, Kraków 2012.

Due diligence in Responsible Business Conduct: From Implementation of International Obligations by States to Respect of Human Rights by Enterprises

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1. Introduction

In 2011 the United Nations (UN) Human Rights Council endorsed the Guiding Principles on Business and Human Rights (henceforth the Guiding Principles) [1], a globally recognized framework ascertaining the responsibility of both state governments and business enterprises to address adverse impacts on people resulting from business activity in all sectors. Given that the Guiding Principles constitute solely an instructive, but non-binding framework, following the United Nations (UN) Human Rights Council resolution 26/9 of 26 June 2014, an intergovernmental working group has been established and tasked with elaborating a legally binding instrument of international law (a treaty/convention) that would codify and provide a legal basis for implementation of the UN "Protect, Respect and Remedy" Framework set out in the Guiding Principles. Such binding instrument would regulate, under international human rights law, the activities of transnational corporations and other business enterprises.

The purpose of this chapter is to take stock of the most relevant developments in recognising and implementing corporate liability for human rights abuses and outline the remaining obstacles to the elaboration of such a binding international law instrument. Since the ultimate goal of such an international agreement is to establish a workable basis for preventing, identifying and remedying of corporate infringements on human rights, the concept of corporate human rights due diligence is of direct relevance for such prospective corporate liability. This contribution will thus also briefly discuss the elements of such corporate *due diligence* as well as the expected modalities of its exercise by business enterprises.

2. Obligations of States Under International Law

Protection of human rights has for decades been recognized as the obligation of states and international (or transnational) authorities. In the legal doctrine fundamental rights are construed as defence rights (in German *Eingriffsabwehrrechte*) of an individual against intrusion of the state [2]. For this reason, according to current legal doctrine and practice private entities are not directly bound by human rights. It means that as a matter of principle individuals who find themselves injured in their human rights by a business entity may not seek remedy on that basis directly against this business entity, but (if admissible) against the state (transnational/international) authority who were to safeguard the protection of the human right(s) at stake. At the same time, under international law states are not liable for actions of individuals (private entities) located within their territory or under their jurisdiction. This principle of non-liability is compromised by the concept of state responsibility for omissions

of its organs or persons acting under its authority. Protection of human rights is dependent on the proper enforcement of law by judicial bodies. If the latter fail to provide protection to individuals and/or foreign interests, a state may be held responsible for non-fulfilment of its obligations under international law.[3] The basic role of the state is, therefore, to safeguard access to remedy for victims.

In other words, in principle human rights apply to the relationship between public authority and an individual (private entity), but not the relationship between two private law subjects.

Derogations from this principle do, however, exist in national law (e.g., in German legal system commonly known as *Drittwirkung der Grundrechte* [4]), notably in the context of labour and the rights of employee's vis-a-vis the employer. These could comprise – depending on the systemic solutions adopted under national law – the right of assembly and collective bargaining, equal treatment in labour, etc.

3. Towards Establishing Corporate Responsibility for Infringement on Human Rights

The latest developments in the field of Corporate Social Responsibility (CSR) and Human Rights may suggest, however, that a new trend in thinking is slowly developing which could change the current state of affairs regarding business exemption from responsibility for human rights abuses (cf. *inter alia* Bodnar and Ploszka 2015 [5], Arnold 2016 [6], Cosset *et al*., 2017 [7], Dziedzic *et al*., 2017 [8], Mares 2018 [9]). This could be desirable for two reasons: Firstly, remedying infringements on human rights should be facilitated for the affected individuals by way of establishing adequate grievance mechanisms [10]. This concerns in particular the situation where adverse impacts on individuals are linked to the operations of transnational corporations which easily evade liability under the local (here national) laws. Secondly, such facilitation could in turn incentivize business entities to more *due diligence* (see the following section) in preventing or mitigating risks of possible infringements on human rights.[1]

In accordance with the UN Guiding Principles on Business and Human Rights, national governments are expected to elaborate, implement and update their National Action Plans (NAPs) on Business and Human Rights [11][2]. That said, the Guiding Principles constitute a real turning point in the efforts to embed responsible business conduct in so far as they propagate business responsibility to respect human rights irrespective of states' abilities and/or willingness to fulfil their own human rights obligations. This responsibility concerns internationally recognised human rights, the authoritative list of which is enshrined in the International Bill of Human Rights, i.e., the Universal Declaration of Human Rights and its codifying instruments: The International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights. The International Labour Organisation core conventions laid down in the Declaration on Fundamental Principles and Rights at Work also count to this minimum benchmark against which corporate human rights impact should be assessed. [1] Furthermore, pursuant to the UN Human Rights Council resolution 26/9 of 26 June 2014, an intergovernmental working group has been established and tasked with elaborating an international binding instrument that would regulate the activities of transnational corporations and other business enterprises under international human rights law. Thus, the initiated multi-stakeholder dialogue on business-related risks to human rights has gained a global reach, involving policy contributions from the OECD [14] or EU institutions [15] and a consultation process with representatives of governments,

[1] In literature also a more radical stance is represented, namely that human rights due diligence "should aim for not less than elimination of infringements of human rights" (Mares 2018 [9]).

[2] For an account on concrete NAPs, see e.g., Cosset *et al*., 2017 [7], Fasciglione 2016 [12], Grabosch and Scheper 2015 [13].

businesses and civil society. Despite these efforts, the elaboration of the aforementioned binding international law instrument encounters considerable obstacles when it comes to specifying objective criteria allowing for attribution of corporate liability for adverse human impacts.

4. The Concept of *due diligence*

The exercise of the *human rights due diligence* by business enterprises is perceived as a core element of their independent responsibility to tackle adverse impacts on individuals.

Failure to exercise due diligence (or negligence) on the part of enterprises could therefore be the basis for their liability and subjection to judicial enforcement. An obstacle to solidifying the said liability of enterprises for non-respect of human rights as a binding norm is the lack of broad enough a consensus what such corporate human rights due diligence should consist in.

Due diligence is considered to be a general principle of international law. Yet, its contents have been substantiated with respect to state obligations, but not regarding the obligations of private (business) entities. It may be briefly defined as an obligation of conduct on the part of a subject of (international) law [16], i.e., typically, but not exclusively governments.

Individuals (and thus also business entities) are also obliged to comply with/respect given standards. The endorsement by the UN Human Rights Council of the Guiding Principles on Business and Human Rights in 2011 provided a strong impetus towards elaborating the *essentialia* of human rights due diligence as applicable to businesses. A notable attempt in that direction is conceiving of due diligence in terms of "process through which enterprises can identify, prevent, mitigate and account for how they address their actual and potential adverse impacts as an integral part of business decision-making and risk management systems" [14].[3] The core components of such a process of proactive management of potential and actual adverse human rights impacts with which enterprises are involved are:

- identifying and assessing actual or potential adverse human rights impacts which the enterprise may cause or contribute in connection with its operations, products, services or business relationships;
- integrating findings on its involvement in the adverse human rights impact and acting upon these findings;
- tracking the effectiveness of undertaken measures to address adverse impacts to verify if they are working;
- communicating on how impacts are being addressed, including informing the affected stakeholders about policies and processes in place. [1][4]

It is noteworthy that the responsibility of enterprises to respect human rights relates to the adverse human rights impacts linked with their operations, products and services in all tiers of their value chain. Going beyond tier one would therefore involve "cascading" requirements, that is the necessity to go down to and check the suppliers of suppliers, which makes the impact assessment process much more complex. Hence human rights due diligence process of an individual business enterprise would need to be "tailored to its particular situation and risk profile, depending on sector, operating contexts and business model." [17]

[3] In this sense also "The report of the Working Group on the issue of human rights and transnational corporations and other business enterprises" of 16 July 2018 for the United Nations General Assembly, p. 3.

[4] Cf. The Guiding Principles on Business and Human Rights …, Guiding Principle 12 and commentary thereto as well as https://www.ohchr.org/EN/Issues/Business/Pages/CorporateHRDueDiligence.aspx (14.02.2019). On the concept of corporate due diligence, see also, e.g., Ruggie and Sherman 2017 [18], Bonnitcha and McCorquodale 2017 [19], Fasterling and Demuijnck 2013 [20].

While the efforts to establish an instructive framework for the application of human rights due diligence to business enterprises tend to improve the respect of human dignity in practical life, for the time being they are not sufficiently substantiating due diligence in this new context. This would, however, be a prerequisite for the *objective* attribution of responsibility for omission to private entities, which is also the basis for grievance and remedy mechanisms.

Such specification of the content of corporate human rights due diligence may be possible on the basis of a critical evaluation of relevant case law of national and international courts, which is beyond the scope of this contribution.

5. Conclusions

Respect for human rights has never been contested as a global standard of expected conduct for business enterprises, irrespective of national governments' ability and/or willingness to meet their own human rights obligations. It may take years, however, before businesses of all sizes and in all sectors accept to integrate into their operations a human rights lens, thus implementing a risk management of potential and actual adverse impacts on people rather than exclusively on their own businesses. Public authorities, especially at national level, dispose of powerful levers to advance corporate human rights due diligence in form of regulatory measures, economic incentives as well as through state leadership, including the development of best practices in state-owned enterprises [17]. A binding instrument under international human rights law would provide a further impetus in that regard, both for national governments and business enterprises. One could imagine two scenarios regarding the prospects of concluding such a binding international agreement.

Firstly, even if such an instrument (treaty/convention) is concluded in the foreseeable future, it is to be expected that – at least in the initial phase – only limited number of national governments will sign it, with only a small proportion of signatory states smoothly carrying out its ratification process.[5] Without the latter, however, national governments will not be bound by the provisions of such an instrument and cease to be committed to its implementation. An alternative scenario would consist in launching a world-wide debate aiming at recognizing *corporate* human rights due diligence as a general principle of international law on a par with that of the state obligations to exercise human rights due diligence. Article 38 of the Statute of the International Court of Justice [21] refers to "general principles of law recognized by civilized nations" as one of the sources of international law, just as treaties, custom, doctrine and case law. Given that the said catalogue of sources of international law is considered as open and has a tendency to be extended to acts of international/transnational organizations or even exceptionally unilateral acts of states (cf. in this regard the Charter of the United Nations), the inclusion of this new general principle would beyond doubt benefit the advancement of the respect of human rights by business enterprises, notably transnational corporations. Since the lack of human rights due diligence ought to be assessed based on objective criteria, ideally the existence and content of treaty provisions, in the absence of the latter *corporate human rights due diligence* would have to be elaborated as a kind of customary norm. The establishment of custom requires a considerably longer time span than the process of codification, hence it is to expect that an international law instrument (treaty) would better benefit a reduced incidence of corporate-related human

[5] By way of example, Protocol No. 16 to the Convention for the Protection of Human Rights and Fundamental Freedoms was open for signature to Members of the Council of Europe as of 02/10/2013. At the time of writing this paper (January 2019), the total number of signatures not followed by ratifications equals 12, whereas the total number of ratifications (i.e., accessions) equals 10. The tenth ratification by France enabled the entry into force of this new instrument which authorizes the national higher courts (of states which acceded to this protocol/treaty) to request an advisory opinion from the European Court of Human Rights before ruling.

rights harm, providing states demonstrate necessary commitment to negotiate, accede to and implement such a treaty. Nevertheless, both strategies might work hand in hand, since increased efforts to achieve a codified instrument could lead to a general awareness that in a globalised economy human rights protection will become ineffective unless a legal principle of corporate due diligence is recognised as an integral aspect of such rights.

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REFERENCES

[1] The Guiding Principles on Business and Human Rights endorsed by the United Nations Human Rights Council resolution 17/4 of 16 June 2011, available at: https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf (accessed on 10.12.2019).
[2] Epping, V. (2017). *Grundrechte*, 7. Auflage, Deutschland, Springer-Verlag.
[3] Kulesza, J. (2016). *Due Diligence in International Law*, Leiden/ Boston: Brill.
[4] Classen, C.D., (1997). Die Drittwirkung der Grundrechte in der Rechtsprechung des Bundesverfassungsgerichts, Archiv des öffentlichen Rechts, 122(1), pp. 65-107.
[5] Bodnar A., Ploszka A. (2015). O potrzebie wdrożenia wytycznych ONZ ds. biznesu i praw człowieka, Helsińska Fundacja Praw Człowieka ANALIZY i REKOMENDACJE Nr 5/2015.
[6] Arnold, D.G. (2016). Corporations and Human Rights Obligations, Business and Human Rights Journal, 1(2), pp. 255-275.
[7] Cossart S., Chaplier J. and Beau de Lomepie T., (2017). The French Law on Duty of Care: A Historic Step Towards Making Globalization Work for All, Business and Human Rights Journal, 2(2), pp. 317-323.
[8] Dziedzic A., Lelievre C., Povilonis J. (2017). Towards EU legislation on Human Rights due diligence. Case study of the garment and textile sector, Paris, HEC (Ecole des Hautes Etudes Commerciales de Paris) – NYU (New York University School of Law) EU Clinic.
[9] Mares, R. (2018). Human Rights Due Diligence and the Root Causes of Harm in Business Operations: A Textual and Contextual Analysis of the Guiding Principles on Business and Human Rights. North-eastern University Law Review, 10(1), pp. 1-71.
[10] Marx, A. *et al*., (2019). Access to legal remedies for victims of corporate human rights abuses in third countries, Study edited by Policy Department for External Relations, European Parliament.
[11] Guidance on National Action Plans on Business and Human Rights, UN Working Group on Business and Human Rights, December 2014 https://www.ohchr.org/Documents/Issues/Business/UNWG_%20NAPGuidance.pdf (accessed on 8.06.2019).
[12] Fasciglione, M. (2016). Corporate Human Rights Responsibility, States' Duty to Protect and UN GPs' National Action Plans: Some Thoughts After the UK 2016 NAP Update, European Papers, 1(2), pp. 621-635.
[13] Grabosch R., Scheper Ch. (2015). Corporate Obligation with Regard to Human Rights Due Diligence. Policy and Legal Approaches. Friedrich Ebert Stiftung, December 2015.
[14] OECD Guidelines for Multinational Enterprises, 2011 Edition, available at: http://www.oecd.org/corporate/mne/48004323.pdf (accessed on 10.02.2019).
[15] European Parliament resolution of 4 October 2018 on the EU's input to a UN Binding Instrument on transnational corporations and other business enterprises with transnational characteristics with respect to human rights (2018/2763(RSP)).
[16] Max Planck Encyclopaedia of Public International Law [MPEPIL], retrieved from: http://opil.ouplaw.com/search?sfam=&q=due+diligence&prd=EPIL&searchBtn=Search (7.02.2019).

[17] The report of the Working Group on the issue of human rights and transnational corporations and other business enterprises of 16 July 2018, A/73/163.
[18] Ruggie J. G., Sherman J.F. (2017) The Concept of 'Due Diligence' in the UN Guiding Principles on Business and Human Rights: A Reply to Jonathan Bonnitcha and Robert McCorquodale, The European Journal of International Law (EJIL), 28(3), pp. 921-928.
[19] Bonnitcha J., McCorquodale R. (2017). The Concept of 'Due Diligence' in the UN Guiding Principles on Business and Human Rights, The European Journal of International Law, 28(3), pp. 899-919.
[20] Fasterling B., Demuijnck G. (2013). Human Rights in the Void? Due Diligence in the UN Guiding Principles on Business and Human Rights, Journal of Business Ethics, 116, pp. 799-814.
[21] Statute of the International Court of Justice, available at: https://www.icj-cij.org/en/statute (accessed on 15.02.2019).

Treating Abstract Thinking in Student Education as Factor of Supporting Business Innovation and Creativity

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1. Introduction

Students of management acquainting themselves with the knowledge about economic processes, entrepreneurship, the needs of shaping attitudes conducive to creativity and innovation sooner or later must start thinking of their future professional career [1]. Then the question arises as to what knowledge and competences should be acquired in order to be able to carry out their professional plans. The required competences should reflect trends in the job market, which in turn result from general economic conditions.

The presented study fits into the broad subject of how to educate contemporary managers and what are their expectations for academic education. In these deliberations, the issue of what kind of knowledge students expect: that is, if they prefer real knowledge (learning specific schemes, procedures, handling tools that will be used during their careers) or would like to learn using abstract thinking methods [2]. As examples of abstract thinking, tools based on three issues were selected: system analysis (application example – [3]), spatial analysis (application example – [4]) and business processes modelling. These issues are presented as useful in building creativity [5] and supporting pro-innovative attitudes [6].

The purpose of the chapter is to examine what type of knowledge students expect from the management faculty. A result of the research was verifying the thesis whether students prefer actual or abstract knowledge. For this purpose, a research was carried out with a group of students, and its results are the subject of the presentation in this chapter.

2. Idea of Applying Abstract Thinking in Management

Abstract thinking is the ability to think about objects, principles, and ideas that are not physically present. It is related to symbolic thinking, which uses the substitution of a symbol for an object or idea [7]. In practice, the ability of abstract thinking allows for searching new solutions, a comprehensive analysis of the environment and elements that operate within it.

Based on abstract analyses, new solutions can be developed and their potential effects can be estimated. Thanks to it one can develop abstract constructions and save them in a formalized way.

The ability of abstract thinking can be used at different management levels and in different roles. The demand for thinking abstractly can be further diversified by the area of the organization in which the person operates. In economical practice, abilities in abstract thinking allow for the analysis of existing decision situations, or even crisis situations, and facilitate the search for new solutions. This is important in a situation where conditions are becoming less and less stable, there is an increase in competition and the environment becomes more and more turbulent. In this case, there is a need not only to constantly perform

permanent duties, but also the ability to respond to changes. This means that creativity may be required from employees or the ability to search for new solutions, including an attitude towards innovative activities [8]. In this way, abilities in abstract thinking can be contrasted with real skills related to practical abilities, to perform specific tasks or support specific machines and devices.

In the presentation the ability of abstract thinking is treated as a part of business education.

The research aimed at the usefulness of abstract thinking in future professional activity.

Abstract thinking skills have been studied mainly in terms of the needs of enterprises with regard to innovation and shaping employee creativity [9].

Opposing the ability to abstract thinking with real skill is in fact a question in which direction academic didactics in the field of management is to be aimed. In these considerations, the mentioned issue was presented from the point of view of students.

3. Research Methodology

For the purpose of this chapter, studies have been prepared and carried out. Their aim was to get to know the expectations of students in the field of education. The basic research problem has become whether they are interested in studying issues that would increase their abilities in abstract thinking. The result of the research was supposed to verify the thesis whether students prefer actual or abstract knowledge.

The research was carried out on the students of the management department. These were surveys which were preceded by an explanation of the issues to which they relate. The explanation concerned were, on one hand, innovation and shaping employee creativity, and on the other hand, chosen abstract methods based on abstract thinking. There were chosen: system analysis, spatial analysis and business processes modelling.

In the course of the research, the selected areas of business activity were showed, where the mentioned abstract types of methods can be used. These were:

- implementation of new technologies,
- searching for new business activity areas,
- reorganization of the company's operations,
- searching for a market identifier,
- building the position of the company's brand.

The tests themselves were carried out according to the following scheme. First, a panel session was conducted where the aforementioned issues were discussed and students were asked to participate in the discussion in order to understand the issues elaborated and research goals better. Then, questionnaire surveys were carried out.

4. Research Results

The research questionnaire consisted of ten questions. The starting point was the question about the professional ambitions of the respondents. The majority of respondents revealed high professional ambitions, because 70% declared their willingness to run their own business or become a member of top management. The remaining 30 percent declared their willingness to become a specialist in a given field with possible ambitions for management positions in a specific area of the company's activity. The obtained results, therefore, showed that students plan to work on decision-making positions, where creativity and pro-innovation attitudes are important. Apart from one exception, all respondents stated that both creativity and innovation are important in the functioning of modern enterprises. Nobody also doubted that these features can be created only on the basis of concrete knowledge. In this way, they

admitted that knowledge about the skill of abstract thinking is also important. However, they assessed the level of the significance in various ways.

Among the pro-innovative factors examined, the respondents pointed first to scientific and technical progress, followed by the results of market research and customer needs. Both factors mentioned above received the average score of 4.02 on a scale of 0-5. Other factors, more related to the knowledge of methods based on abstract thinking were assessed below: the reorganization capacity was rated at 3.54, while the non-standard skills at 3.22.

The question about the relationship of utility between specific and abstract-based knowledge was constructed on the principle of a slider. Respondents were supposed to set the slider in place which meant how many percent of their importance is specific to abstract knowledge.

Most of the students (60%), felt that concrete knowledge was more important to them. 13% stated that both types of knowledge have the same meaning, while 27% claimed that knowledge based on abstract thinking methods is more important. The most commonly assigned weight dependencies were 70 to 30 (about 20% observation) for specific knowledge.

Another group of questions concerned the usefulness of methods based on abstract thinking in specific areas of the company's operations. The respondents were to assess the utility of tools based on system analysis, spatial analysis and business process modelling, if they could be useful in creating pro-innovative attitudes. The students were to evaluate particular types of tools on a scale from 0 to 5 according to selected areas of the company's activity. The results are presented in Tab.1

Tab. 1. Evaluation of the usefulness of abstract thinking methods in creating pro-investment attitudes

Method	System analysis			Spatial analysis			Business Processes Modelling		
Area	Rating	Dominant	Median	Rating	Dominant	Median	Rating	Dominant	Median
implementation of new technologies	4.19	5	4	3.16	5	4	4.05	5	4
searching for new areas of activity	3.30	4	4	3.88	5	4	2.91	4	3
business reorganization	2.72	3	3	2.89	4	3	3.05	4	3
searching for a market determinant	2.20	0	3	2.91	4	3	2.29	3	3
building the position of the company's brand	3.27	5	4	3.07	4	3	2.84	5	3

Due to the fact that the respondents rated on a linear scale with equal intervals, it was possible to count the arithmetic average. However, due to differences in assessments, it was considered that in addition to the average, the results obtained should be described by a dominant and a median. Apart from one case (using system analysis tools to search for a market determinant), the dominant value was higher than the average. Therefore, in this case only, the median was higher than the dominant. In other cases, the dominant was higher or equal. In general, lower median values caused that the average was higher than the median in four cases.

Looking from a statistical point of view, the arithmetic average, except for two cases, was above 2.5. Therefore, assumptions can be made that respondents recognized the importance of abilities in abstract thinking in pro-innovation attitudes shaping. In this case, only the area of searching for a market determinant obtained relatively low ratings. (2.20 for system analysis, 2.91 for spatial analysis and 2.29 for business process modelling). In this area thus, in the case

of systemic analysis, the dominant was 0. In the remaining cases, the dominants assumed values in the range from 3 to 5, and medians 3 to 4.

Another research issue concerned the assessment of the usefulness of methods based on abstract thinking in the field of creativity. In this case, the respondents were to evaluate the utility of abstract thinking methods in a percentage system. Only 2% of respondents did not see the usefulness of business process modelling methods in educating creativity. In the case of spatial analysis, it was 5%, and in the case of system analysis – 7%. Statistical parameters are presented in Tab.2.

Tab. 2. Evaluation of the usefulness of abstract thinking methods in the area of stimulating creative thinking

Statistical parameter Method	Rating	Median
System analysis	57.52	60
Spatial analysis	56.95	60
Business Processes Modelling	62.27	50

Source Own study

The above results indicate that the majority of respondents recognized the usefulness of the methods discussed. The average in all three types of methods was above 50%. However, in this case the results were more destructive, i.e., there were extreme positions indicating 100% and zero utility of the discussed methods. It can be assumed that the respondents were divided into two groups: people recognizing the usefulness of the abstract thinking methods discussed and their opponents, present in the minority).

In the summarizing questionnaire, respondents had to explicitly declare whether they should be taught methods based on abstract thinking. The vast majority stated that they should. In the case of methods based on system analysis, it was 98%, business process modelling 91%, and 86% for spatial analysis.

5. Analysis of Research Results

During the introductory discussion to carry out the research, the question arose what are the methods based on abstract thinking? The students were largely convinced that they were useful to employers primarily because of their specific knowledge. Knowledge of methods based on abstract thinking was treated as an addition to concrete knowledge. On the other hand, the first question raised the issue of their professional ambitions. At that time, there was the issue of pro-investment behaviours and the need for creativity. A significant proportion of respondents, bearing in mind the contemporary turbulent environment of enterprises, admitted that knowledge of the methods studied could be useful in their professional careers.

When analysing the results obtained, the following conclusions can be assumed:

- Students appreciate the role of abstract thinking, however, the bridge of them prefers concrete knowledge.
- Despite the preference for real methods, students noticed during the research that abstract methods can be useful in stimulating creativity and innovation in many areas of the organization's activity.
- Most of the answers submitted were largely intuitive, which can be seen in the discrepancy of the results obtained (scores issued by the respondents were scattered throughout the entire acceptable areas).
- Students are interested in learning abstract methods, but would like to study mainly their applications and, to a lesser extent, their principles.

- The research has helped students to link the dependence of knowledge acquired on various subjects during their studies.

From the studied types of methods based on abstract thinking, the greatest importance was attributed to the system analysis. It obtained relatively high marks. The modelling of business processes, in turn, showed the largest polarization of positions. It can be presumed that those respondents who in practice came across the process approach to management considered it very useful. In turn, for people who have problems with algorithmic thinking, these methods have become difficult and incomprehensible. Spatial analysis, in addition to the analysis of usability in creating pro-innovation attitudes, was given the smallest significance. However, it can be presumed that this is due to the fact that the study program has been given relatively little time to teach.

6. Conclusions

This study is part of the discussion on the shape of future academic education (see). In this case, it refers to education in management sciences and it is presented from the point of view of students. Based on the analysis of the obtained results, it can be stated that students expect actual knowledge above all. Even if they are presented with methods based on abstract thinking, they are primarily interested in indicating where and how these methods can be applied. Admittedly, they appreciate that the proposed examples of methods are useful both in shaping pro-innovation attitudes and creativity, which in the current market situation are equally desirable among managers, however they still want to get specific knowledge on how to use these methods.

Summing up these solutions, it should be assumed that in the didactic process students need to be explained not only the essence of methods based on abstract thinking, but also the directions of their applications. On the other hand, it should be made clear to them that the presented examples are only the selected ones from many other possibilities [10]. However, their value as managers will lie in the fact that in addition to learning about the presented methods, they will be able to apply them in original situations.

REFERENCES

[1] Bazzy J.D., Smith A.R., Harrison T. (2018), The impact of abstract thinking on entrepreneurial intentions. International Journal of Entrepreneurial Behaviour & Research, https://doi.org/10.1108/IJEBR-03-2018-0128

[2] Jelonek D., Stępniak C. (2014). Evaluation of the Usefulness of Abstract Thinking as a Manager's Competence, Polish Journal of Management Studies, vol. 9. pp. 62-71.

[3] Soltanzadeh S., Mooney M. (2016). Systems Thinking and Team Performance Analysis. International Sport Coaching Journal, 2016, 3, pp. 184-191.

[4] Kowalik J. (2016). Ekonomiczne uwarunkowania innowacyjności przedsiębiorstw w UE. Analiza przestrzenno-czasowa. Zeszyty Naukowe Politechniki Śląskiej. Seria: Organizacja i Zarządzanie. z. 97, pp. 169-180.

[5] Porandokht F., Saber A. (2012). Creativity in Schools. Procedia – Social and Behavioural Sciences 82 (2013) pp. 719-723.

[6] Westland J. Ch. (2017). Global Innovation management. Palgrave.

[7] Borovik A. The strange fate of abstract thinking. Last view 31.01.2019. http://www.maths.manchester.ac.uk/~avb/pdf/AVBorovik_ICTMT10.pdf.

[8] Morozov V., Taskaeva N., Basic Market Factors Affecting Innovative Activities. Journal of Internet Banking and Commerce. ISSN: 1204-5357. http://www.icommercecentral.com/open-access/basic-market-factors-affecting-innovative-activities.php?aid=75665 last view 31.01.2019.

[9] Szilvia P.-Sz. (2012). Creative climate as a means to promote creativity in the classroom. Electronic Journal of Research in Educational Psychology, 10 (3), pp. 1011-1034. ISSN: 1696-2095. 2012, no. 28.
[10] Scogin S. (2018) Identifying the Factors Leading to Success: How an Innovative Science Curriculum Cultivates Student Motivation. Journal of Science Education and Technology (2016) 25: p. 375. https://doi.org/10.1007/s10956-015-9600-6.

Rights of Minority Shareholders in Poland. Theoretical and Practical Implications

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Keywords: Minority shareholder, principal-principal conflict, institutional environment, Polish joint stock companies

1. Introduction

The very issue of protecting rights of minority shareholders should be taken into consideration from the perspective of the corporate governance concept. Corporate governance structure defines distribution of rights and responsibilities of stakeholders within their organization [1]. Enterprise is made up of the system of relationships that emerges when the direction of distribution of resources depends on an entrepreneur [2]. "CG is a set of self-enforcing rules (formal or informal) that regulates action choices of those players contingent on evolving states." [3]. The above formal and informal rules refer to institutions that are defined by North to be game rules in the society [4]. Formal rules are specific and they are precisely defined in legal regulations. Informal rules refer to activities undertaken in a specific manner [5]. Describing economic institutions, Williamson identifies four levels of social analysis. First level is a level of social rooting that is made up of informal institutions – "the social embeddedness level" [6]. Second level refers to something that Williamson refers to as the institutional environment. Third level is a place where governance related institutions are located [6]. On the fourth level discrete structural analysis is replaced with marginal analysis [6].

Rights of shareholders are confined within an element of the institutional environment. The chapter aims at identifying and evaluating rights of minority shareholders in Poland.

Therefore, an attempt to answer the following questions is undertaken: Which formal institutions protect rights of minority shareholders in Poland? Do the institutions in question sufficiently protect ownership of minority shareholders in Poland?

The very ownership in its legal understanding is a juridical synonym of economic ownership that shall be understood as a form of owning physical objects and other assets [7].

Ownership right is a social instrument that helps society members formulate their justified expectations while doing transactions with others [8].

2. Principal-Principal Conflict

Jensen and Meckling notice that a thematic scope of the phenomenon of ownership rights is remarkably wider that the content suggested by the very meaning of the term. It is important to identify individual rights that determine distribution of costs and profits between participants of any organization. Jensen and Meckling concentrate, however, on behavioural consequences of ownership rights in contracts concluded between owners and managers of enterprises [9]. These contracts or internal 'game rules' define rights of each agent in an organization, criteria to be used while assessing their work and remuneration that is assessment-based [10]. From that perspective, the most fundamental conflict that might be observed in a joint stock company involves extensive (dispersed) shareholdings (principal)

and professional managers (agent) [11]. Sources of the conflict in question are thought to be found in opportunistic behaviours of managers. However, in numerous countries including Poland, structure of ownership and control in enterprises is of concentrated nature. This is confirmed by abundant research into ownership structures of Polish enterprises. Tamowicz and Dzierżanowski report a very high level of concentration of ownership and control in Polish joint stock companies [12]. Similar observations are also made by Urbanek [13] and Adamska [14].

An increase in concentration of ownership and control allows for avoiding a traditionally understood conflict that might be observed between a principal and an agent [15].

This statement, however, frequently fails to be validated in practice. Poorly functioning mechanisms of corporate governance intensify differences between shareholders. The differences in question refer to particular roles of particular groups of shareholders in monitoring and in their capacity of expropriation by the form of enforced limitation of ownership rights [11]. As a result, there emerges a conflict between two groups of principals, i.e., the principal-principal conflict [16]. In the case of such a defined conflict, a principal (a controlling shareholder) becomes a source of organizational ineffectiveness and a reason for governance related problems. Controlling shareholder may expropriate other shareholders due to control that he/she has already obtained over the enterprise governance structure [17].

Expropriation may, therefore, be observed in conditions of poor governance and in the situation when a majority shareholder takes an enterprise under control and deprives minority shareholders of their right to obtain decent rates of return [18]. Hence, principal-principal problems result from differences in interests represented by majority and minority shareholders. The issue in question gets intensified because of differences between cash flows and control rights [19]. As R. La Porta *et al*., notice, expropriation may take different forms.

They pay attention to activities undertaken by controlling shareholders (managers) that mainly involve stealing profits but also selling products, assets or additional securities to enterprises they own at underestimated prices. What is more, they point out to the following phenomena: taking advantage of opportunities faced by controlled enterprises, employing unqualified family members as managers or overpaying managerial personnel [20]. Legal regulations that are meant to protect rights of minority shareholders may, however, lead to limitation of controlling shareholders' opportunism [21]. Formal institutions do influence directly controlling shareholders' capacity and motivation to get involved in the principal-principal conflict [22]. Nevertheless, in order to limit controlling shareholders' opportunism, it is necessary to develop formal institutions that shall strengthen minority shareholders' position in a joint stock company. What is more, it is also necessary to enforce due rights of minority shareholders.

3. Position of Minority Shareholder in Joint Stock Company – Polish Solutions

Regulations of the Act of 15 September 2000, the Commercial Companies Code (as per 3 January 2019) [23] is of key importance for understanding a position of minority shareholders in joint stock companies in the Polish economy. This Act comprehensively regulates all issues related to the way joint stock companies function, i.e., creation of the company, rights and obligations of shareholders, company governing bodies, amendment to the statutes and ordinary increase of the share capital, authorized capital, reduction of the share capital, dissolution and liquidation of the capital and civil liability [23].

In spite of the fact that in Article 20 the following principle is adopted: the shareholders of a joint stock company shall be treated in the same manner where similar circumstances apply; the Legislator applies some exceptions that strengthens position of the minority shareholders [23].

At the stage of creation of the company, Article 312 1. § 3 of the Commercial Companies Code provides a shareholder who holds at least one twentieth of the share capital with a right to demand the report of the promoters to be audited by an auditor [23]. This right is of much importance for the correct evaluation of in-kind contributions made.

In the case of rights and responsibilities of shareholders, the rights of all shareholders are defined in compliance with the principle that shareholders shall be treated in the same manner.

However, in the case of company governing bodies (management board, supervisory board, general assembly), it is necessary to pay attention first to the position of a minority shareholder in the process of supervision. Pursuant to Article 385 § 3, upon an application of the shareholders, representing at least one fifth of the share capital, the election of the supervisory board shall be made by the next general assembly by way of a vote in separate groups. This solution is very important because members of the supervisory board appointed by way of a vote in separate groups enjoy their right to participate in meetings of the management board with advisory voting capacity. Moreover, each group is entitled to delegate its members to individually and permanently perform certain acts of supervision (Article 390 § 2) [23]. However, in the case of general assembly, a position of a minority shareholder is enhanced by several legal institutions. Article 400 § 1 of the Commercial Companies Code provides for the following: "The shareholder or shareholders representing at least one tenth of the share capital may request that an extraordinary assembly be convened, as well as that certain matters be placed on the agenda of the next general assembly […]." [23]. It is necessary to highlight here that pursuant to Article 400 § 1 the statutes of the joint stock company may include a solution that shall grant shareholders representing less than one twentieth of the share capital the right to request to convene an extraordinary general assembly. What is more, a shareholder or shareholders who represent at least one twentieth of the share capital have the right to request to place certain matters on the agenda of the next general assembly (Article 401 § 1). The shareholders in question may also request a joint stock company to consider drafts of different motions (resolutions) in the period stipulated by the Act (Art. 401 § 4). As far as procedural questions are concerned, it is worth highlighting that upon a motion of the shareholders, representing one tenth of the share capital represented at the general assembly, the attendance list shall be checked by a committee elected for that purpose (Article 410 § 2). Furthermore, the statutes of joint stock company can limit the voting rights of shareholders who have more than one tenth of the total votes in the company (Article 411. § 3). However, in the case of adoption of a resolution on a major change of the objects of the company when a majority of two thirds of the votes is required, shareholders who do not agree to the change shall have their shares bought out (Article 416 § 1, § 4).

Certain protective measures are also provided by the legal institution stipulated in Article 418 § 1. This institution aims at protecting shareholders who hold not more than 5% of the share capital against a forced buyout of their shares. The protective measures in question involve strict requirements for adoption of the resolution on a forced buyout of shares held by such shareholders [23]. Pursuant to the Article, "the general assembly may adopt a resolution on a forced buyout of shares of the shareholders representing not more than 5% of the share capital (minority shareholders) by not more than five shareholders, holding jointly not less than 95% of the share capital. The resolution shall require a majority of 95% of the votes cast.

The statutes may provide for stricter requirements for the adoption of the resolution" (Article 418 § 1) [23].

In the case of other areas of functioning a joint stock company, legal institutions are developed in compliance with the principle that all shareholders should be treated in the same manner.

4. Conclusions

While evaluating Polish legal institutions that aim at protecting rights of minority shareholders, it should be noted down that the solutions that have been developed in this respect sufficiently protect the minority shareholders in question. The above considerations distinguish the following verifying institutions: a possibility to demand the report of the promoters to be audited by an auditor or to demand verification of shareholders' attendance at the general assembly. Minority shareholders' supervision is also enhanced by their right to vote at the general assembly in separate groups in order to appoint their supervisory board.

What is more, a supervisory board member appointed that way is entitled to participate in management board meetings and can perform supervisory activities individually. Minority shareholders are also provided with a right to request an extraordinary general assembly to be convened and to influence its agenda. Minority shareholders are additionally equipped with some power to initiate draft motions (resolutions). Several institutions of typically protective nature are also available. In the case of major changes to the statutes – a request to perform a share buyout and in the case of a forced buyout – strict requirements of adopting a relevant motion (resolution). Besides, the legislator provides shareholders with extensive freedom to draft statutes of their joint stock companies in order to allow them for different other institutions that could protect the minority shareholders' position. Adoption of stricter solutions aimed at protecting rights of minority shareholders would undermine the very sense of existence of a joint stock company that – in its definition – favours a majority. It is also necessary to observe that a position of minority shareholders in a joint stock company does not only result from solutions that are dedicated to that group of shareholders. One cannot forget about rights that all shareholders are entitled to. In the case of Poland, the rights in question involve a wide spectrum of entitlements, both corporate and property related ones.

Some attention should also be paid to the fact that many legal institutions that are meant to protect the very joint stock company and their shareholders may be found in the administrative, civil and penal laws. Cases of drastic infringements of rights of minority shareholders may be effectively blocked in the Polish legal environment. However, it is indispensable to raise minority shareholders pro-activeness. Therefore, Polish legal solutions that aim at protecting rights of minority shareholders do not result in any organizational ineffectiveness that could possibly stem from the principal-principal conflict.

REFERENCES

[1] European Central Bank. (2005). Annual Report 2004, Glossary. Retrieved from https://www.ecb.europa.eu/pub/pdf/annrep/ar2004en.pdf?7df6f155394757406c9fa2be00c65447
[2] Coase R. H. (1937). The Nature of the Firm. Economica, New Series, 4(16), pp. 386-405.
[3] Aoki, M. (2004). Comparative Institutional Analysis of Corporate Governance. In A. Grandori (Ed.), Corporate Governance and Firm Organization: Micro foundations and Structural Forms (pp. 31-44). New York, NY: Oxford University Press.
[4] North, D. C. (1992). Transaction Costs, Institutions, and Economic Performance, San Francisco, Calif.: An International Center for Economic Growth Publication (ICEG).
[5] North, D. C. (2003). The Role of Institutions in Economic Developments. Discussion Paper Series, No. 2003.2. United Nations Economic Commission for Europe, Geneva, Switzerland. Retrieved from https://www.unece.org/fileadmin/DAM/oes/disc_papers/ECE_DP_2003-2.pdf
[6] Williamson, O. E. (1998). Transaction Cost Economics: How it Works; Where it is Headed. De Economist, 146(1), pp. 23-58.
[7] Gniewek, E. (2016). Prawo rzeczowe. Warszawa: C.H. Beck.
[8] Demsetz, H. (1967). Toward a Theory of Property Rights. The American Economic Review, 57(2), pp. 347-359.

[9] Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. Journal of Financial Economics 3, pp. 305-360.
[10] Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control, Journal of Law and Economics, 26(2), pp. 301-325.
[11] Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. (2008). Corporate Governance in Emerging Economies: A Review of the Principal-Principal Perspective. Journal of Management Studies, 45(1), pp. 196-220.
[12] Tamowicz, P., & Dzierżanowski, M. (2002). Własność i kontrola polskich korporacji. In S. Rudolf (Ed.), Strategiczne obszary nadzoru korporacyjnego zewnętrznego i wewnętrznego (pp. 221-238). Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
[13] Urbanek, P. (2011). Rynek kontroli nad korporacją w warunkach zamkniętego modelu kontroli (na przykładzie polskich spółek publicznych). Zeszyty Naukowe, Polskie Towarzystwo Ekonomiczne, Kraków, 9, pp. 215-237.
[14] Adamska, A. (2013). Własność i kontrola. Perspektywa akcjonariuszy spółek publicznych. Warszawa: Oficyna Wydawnicza Szkoła Główna Handlowa w Warszawie.
[15] Lin, Chih-Pin, & Chuang, Cheng-Min (2011). Principal-Principal Conflicts and IPO Pricing in an Emerging Economy. Corporate Governance: An International Review, 19(6): pp. 585-600.
[16] Jiang, Y., & Peng, M. W. (2011). Principal-Principal Conflicts During Crisis. Asia Pac J Manag, 28, pp. 683-695. DOI 10.1007/s10490-009-9186-8
[17] Calabrò, A., Campopiano, G., & Basco, R. (2017). Principal-Principal Conflicts and Family Firm Growth. The Moderating Role of Business Family Identity. Journal of Family Business Management, 7(3), pp. 291-308. DOI 10.1108/JFBM-02-2017-0005.
[18] Dharwadkar, R., George, G., & Brandes, P. (2000). Privatization in Emerging Economies: An Agency Theory Perspective. Academy of Management Review, 25(3), pp. 650-689.
[19] Ben Ali, C. (2014). Corporate Governance, Principal-Principal Agency Conflicts, and Disclosure. The Journal of Applied Business Research, 30(2), pp. 419-431.
[20] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor Protection and Corporate Governance. Journal of Financial Economics, 58, pp. 3-27.
[21] Young, M. N., Peng, M. W., Ahlstrom, D., & Bruton, G. D. (2002) Governing the Corporation in Emerging Economies: A Principal-Principal Perspective. Academy of Management Proceedings, BPS: E1.
[22] Sauerwald, S., & Peng, M. W. (2013). Informal Institutions, Shareholder Coalitions, and Principal-Principal Conflicts. Asia Pac J Manag, 30, pp. 853-870. DOI 10.1007/s10490-012-9312-x
[23] Ustawa z dnia 15 września 2000 r. Kodeks spółek handlowych. (Dz. U. z 2017 r. poz. 1577, z 2018 r. poz. 398, 650, 1544, 2219). Retrieved from http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20170001577

Bank-NGO Partnerships in the Romanian CSR Framework

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1. Introduction

Corporate social responsibility (CSR), a term that was defined as a contract between enterprises and society through which the first fulfils certain obligations and receives the license to operate on the market [1], enhances the powerful role of stakeholders in the process.

Even if the stakeholder theory has a widespread popularity in the literature [2, 3, 4], most academic discourses focus on the stakeholder's pressure and their CSR claims, neglecting the positive implications that contribute to the success of the CSR policies. The first objective of this chapter is to determine the relationship between banks and NGOs, assuming that this was evolving from a pressure mechanism activated by the NGOs to a strategic partnership based on mutual benefits. The present chapter investigates the bank-NGO relationship and the *People* profile according to the "triple bottom line" approach [5], using in-depth interview method, coding the data and structuring it in accordance with the main theoretical constructs.

One of the major contributions to the CSR literature is the clear shift to the philanthropic concern through NGOs, while those institutions are seen as powerful tools in developing the sustainable projects. In this context, outlining the discretionary dimension of the Carroll's pyramid [6], which is purely voluntary and closes the circle of responsibilities, has resulted in the proliferation of the philanthropic responsibilities, with a particular emphasis on the welfare of the community. While most researchers amplify the customer's perceptions and attitudes towards the responsible behaviour of the banks [7, 8], the present chapter focus on the NGOs representatives perception regarding the CSR initiatives developed by banks in Romania, suggesting a more reliable climate and a close relationship bank-NGO, with direct implications for the CSR banking agenda.

2. Data and Methodology

In order to obtain a complete image of the CSR development in the Romanian banking sector, it was used the content analysis of the official websites for the most active credit institutions in terms of total assets. The data provided by the National Bank of Romania [9] was included in the Annual Report 2015, being extracted only the foreign capital credit institutions or their branches that operate in Romania, due to the major influences of multinationals to the local entities. The final sample of the chapter included the following banks: Banca Comercială Română S.A., BRD – Groupe Société Générale S.A., Raiffeisen Bank S.A., UniCredit Bank S.A., ING Bank S.A., Alpha Bank România S.A., Bancpost S.A., Piraeus Bank România S.A., Banca Românească S.A. and OTP Bank România S.A.

While the research method was also used by Grafström and Windell [10] to depict how CSR was presented by the business press in the period 2000-2009, our efforts were focused on the official positions of the analysed banks towards CSR. This method was used in order to explain the differences between the CSR official disclosure and the CSR perceptions of one of

the most influential groups of stakeholders: the non-governmental organizations. The qualitative research was built on the major role of NGOs as intensifiers of the CSR current, approach that is in a clear contrast to the arguments that strengthen the pressure power of NGOs that have forced the banks to adopt a reactive position towards sustainability [11, 12].

Our attempt was to fill in this gap by conducting ten in-depth interviews with NGOs representatives that benefited from funding offered by the analysed banks, from all Romanian geographical areas and including the social, environmental or educational fields (October 2017-February 2018). The collected data was coded through the MAXQDA software, in order to identify the most appropriate codes in line with their frequency, mixing the descriptive coding with In-Vivo codes, organizing and comparing the considered coding sequences. In order to capture the main features of the banks-NGOs partnerships, the coding scheme was structured in accordance with the theoretical background, resulting a model with three dominant components (*People*, *Planet*, *Profit*). The content analysis of the CSR website sections has highlighted the intense cooperation between banks and NGOs, leading to the idea that these partnerships can significantly contribute to the CSR development in the Romanian banking sector and their dissemination to the general public.

3. Results and Discussions

3.1. Coding Analysis of Bank-NGO Partnerships

First of all, the analysis highlights two ways to understand a *successful partnership* between a bank and a NGO, from the perspective of the NGO representatives: (1) a vision that presents the successful partnership only by reference to the NGOs and (2) an extended vision where the subjects described a successful partnership in a double perspective, often divided, between the expectations of the NGOs and the expectations of the credit institutions in the CSR area. Among the characteristics of a successful partnership for the bank, the NGO representatives pointed out the visibility elements, by pursuing a sufficiently large target group or promoting the bank's image among students in order to facilitate the recruitment process. Most of the discussions were directed towards the NGO's own expectations, of which the most important direction was the development of long-lasting partnerships, due to the discontinuity problem that NGOs faces, with negative repercussions for their own beneficiaries.

At the conjunction between these two visions there is the area of common expectations, which places the partnership in a mutually advantageous area, a win-win system that expresses the satisfaction of both parties involved. The codes from this category refer to three basic stages in the development of a bank-NGO partnership: (1) the existence of mutual needs, (2) the expression of common requirements, and (3) the achievement of positive results for both partner entities. But the most significant direction, hidden by the answers given in a positive note, is the firm rejection of a major adjustment of the project by bringing it in a commercial area or its excessive conversion to a form that no longer identify with the original proposal.

3.2. The CSR Deficiencies of Banking Philanthropy in Romania

The main issues raised by the respondents in relation to the credit institutions include: difficult access to decision-making bodies, rigorous expenditure reporting, difficult and sometimes bureaucratic communication, a passive participation of the banks in the CSR projects implementation, mainly through the financial resources or too high expectations in terms of communication (Figure 1). The most significant direction was the difficult access to

financing, the NGO agents presenting it as a long-lasting process with difficult assessment stages. Another important issue within this category was reported by the small NGOs that have received funding from banks through other intermediary organizations. From their point of view, the access to funding (code: *accessibility*) is considered difficult for small organizations with little visibility, being related to the NGOs ability to address as many people as possible. Thus, these organizations can hardly access the funds, confirming the idea that the credit institutions are directed to the *Profit* dimension, even in the philanthropic circumstances. Moreover, one of the negative aspects is also the gap between the bank's involvement at regional level and the insufficient adjustments to the local communities.

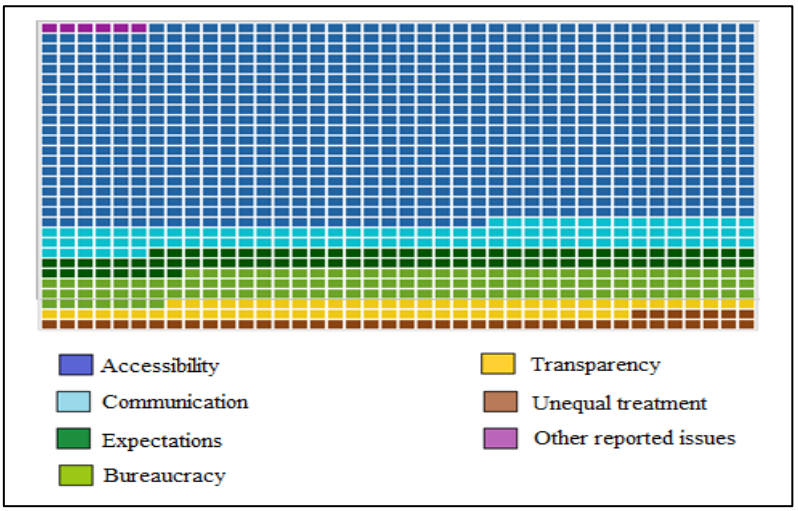

Fig. 1. What do you think that are the main problems faced by the NGOs in relation to the donors – credit institutions?
Source: author analysis using MAXQDA software

Another major problem identified concerns the excessive *bureaucracy*, the banks sending a large number of emails, telephone conversations or meetings, which creates a delay in the project implementation. Moreover, such an attitude generates dissatisfaction and frustration, people trying only to tick the activities, reducing in this way the initial impact of the CSR actions. The same idea is reinforced by the *unequal treatment* code, as a consequence of the opinions suggesting an imbalance in the ratio NGO-banks. According to them, the NGOs are treated as unequal partners, although in terms of involvement they bring similar added value with the banks, whose efforts are mainly financial.

Most of the NGOs reported *communication* or *transparency* among the problems encountered in the banks-NGOs cooperation, the first referring to the endogenous elements of the partnerships, while the second to the exogenous elements. Thus, the *communication* between the NGOs representatives and the credit institutions is hampered by the lack of dedicated staff to the CSR issues or local decision-makers. Although the evolution of corporate social responsibility within the Romanian banking sector is appreciated by the respondents, they still signal the fragile connection with the CSR responsible banking staff in order to initiate a collaboration.

The *transparency* code includes deficiencies in the CSR reporting and the lack of reciprocity in promoting the partnerships. Thus, the banks have significant communication expectations from NGOs, but they rarely provide a fair promoting practice. A critical point highlights the fragmentary communication by taking over some projects and promoting them as new initiatives without referring to the past history of the projects. In this way, the banks exaggerate their role, minimizing the contribution of the NGOs that propose and implement the projects. From this point of view, the CSR communication reflects in an unclear way the

role of each partner in the project implementation. Another problem affecting the bank-NGO partnership is *the lack of common expectations*, especially the objective of the credit institutions to maximize their exposure or the differences between the target audience of the project and the target audience of the bank. These problems are overcome especially due to the non-governmental sector flexibility, the NGOs acting as promoters of the CSR activity in the Romanian banking environment and support-institutions in simplifying the CSR process.

3.3. The People Dimension of CSR Approach

The perception of the NGOs representatives on the bank's motivation to engage in corporate social responsibility projects (Figure 2) is related to the "triple bottom line" approach through the two main codes: *the desire to contribute* and *the profit*. Despite the inherent problems resulting from such cooperation, most of the opinions have found a convergence point in the idea of a philanthropic commitment, as a desire to contribute to the common good and to help in an altruistic way. The respondents appreciated the involvement of the credit institutions in such projects, feeling the personal attachment of the employees. In this respect, a particular significance was offered to the codes that referred to the emotion, such as: *joy*, *beautiful*, *wonderful*, *pleasure*, *involvement*, *motivation*. The NGOs representatives have noticed how banks have resonated with their initiatives, sensing their concern to give something back to the community. In this respect, the code *willingness to contribute* is directly linked to the philanthropic dimension from the Carroll's pyramid [6].

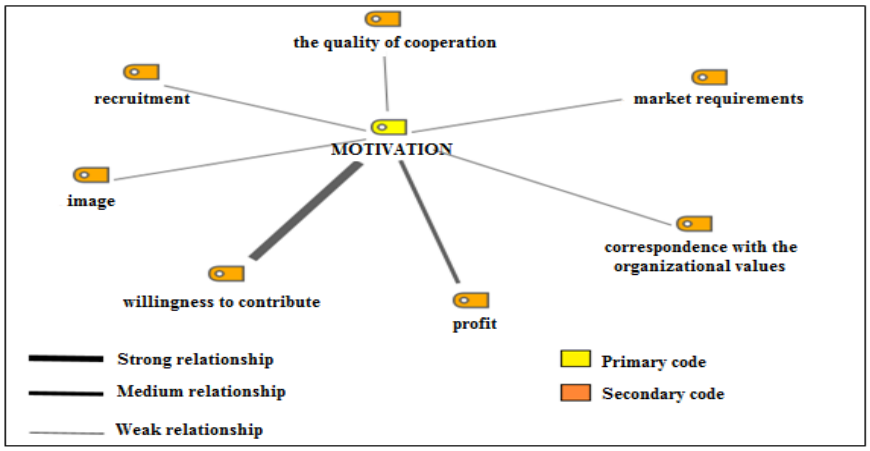

Fig. 2. What motivation do you think the banks had to get involved in this project?
Source: author analysis using MAXQDA software

From the point of view of the NGOs representatives, the second category of motivations was the *Profit* dimension, considered a justifiable approach which derives from the very existence of the banking institutions. According to the expressed opinions, the banks need to make profit, and if this process involve both employees and customers to do good, then the CSR involvement is even more productive. From an economic perspective, the banks-NGOs partnerships increase the visibility among new segments of potential clients, individual or corporate donors. On the other hand, the involvement of the credit institutions in supporting the educational field seems to have significant effects at macroeconomic level, by improving the Romanian education system, the entrepreneurship initiatives or the labour market.

The donations mechanisms by which the online transactions were rewarded by doubling the amounts, are perceived as a strategy to increase these types of transactions, but also a CSR element managed by the banks in order to do more for the community. Another opinion suggests a double motivation for the bank, expressed in terms of sympathy: the sympathy of the employees, on the one hand, and the sympathy of those assessing their CSR activity, on

the other hand, with strategic effects in terms of sales growth and labour productivity. In the same direction, the motivation is related to strengthening the image on the market by involving mainly in large projects. These are carried out at both local and national level and are addressing a large group of potential clients (code: *image*). The selection of the student organizations in the sample of the chapter has led to the identification of another possible reason for the CSR involvement of the credit institutions: the recruitment of talented students (code: *recruitment*).

Among the reasons that have been mentioned by the NGOs representatives in the in-depth interviews were the ones regarding the confidence towards the NGOs, the quality of the services provided and the overall quality of the collaboration with them, which may lead to new partnership experiences (code: *the quality of cooperation*). The climate of trust, mutual support and effective communication are the main elements of a traditional partnership, in which the two partners cooperate in a common sense. The primary objective of the most NGOs is the development of long-term partnerships, either by organizing multiple editions or creating new initiatives with the same mix of partners. The bank's CSR strategy, the organizational values and the banking culture are decisive factors in order to fix the dominant CSR fields of interest, the credit institutions selecting projects that best fit their own organizational foundation (code: *correspondence with the organizational values*). Only one opinion has established a link between the motivation and the competitive environment (code: *market requirements*), by virtue of the competitive advantages that a responsible behaviour can generate, suggesting that the CSR development has become a necessity to which all the banks have to align.

4. Conclusions

Even if the literature focusing the business-NGO relationship is rather limited, the outputs of the chapter rely on the double role of NGOs as critics and counsellors [13]. The content analysis of the bank's official websites outlined the importance of non-governmental organizations in the CSR development of the Romanian banking system, confirming this key role. The main CSR directions of the banks included in the sample suggest the focus on the image-oriented CSR fields with more impact on the public perception. A recurrent element is visibility, as a major objective for the bank's involvement in the CSR activity, while the NGOs expect more in terms of time framework. The difficulty in accessing the financing is related to the expectations in terms of communication, being associated to the NGOs ability to address as many people as possible. The communication issues are also considered in the study of Keck and Sikkink [14] as a first barrier in corporate-NGOs interaction due to the significant differences in the CSR understanding.

The results of the chapter are in line with the criteria included in the questionnaire of Jonker and Nijhof [15] addressed to the non-governmental organisations, the trust being considered crucial for the corporate-NGO relationship. The key finding from the present chapter is that the NGOs representatives trust in the philanthropic nature of the projects implemented by the credit institutions, presenting them as responsible citizens aware of the local community needs. The coding process of the in-depth interviews with representatives of the NGOs suggests a clear link with the code *willingness to contribute*, founding a convergence point in the idea of a philanthropic commitment, as a desire to contribute to the common good and to help the community in an altruistic way. Even if the NGOs representatives admit the existence of financial purposes in the CSR development of the credit institutions, they perceive it as a justifiable approach, considering the employee volunteering or the involvement of the clients a positive step in the CSR evolution.

REFERENCES

[1] Woodward-Clyde, N.Z. (1999). Key Opportunities and Risks to New Zealand's Export Trade from Green Market Signals. Auckland: New Zealand Trade and Development Board.

[2] Clarkson, M.B.E. (1995). A stakeholder framework for analysing and evaluating corporate social performance. Academy of Management Review 20(1), pp. 92-117.

[3] Park, B.I., Ghauri, P.N. (2015). Determinants influencing CSR practices in small and medium sized MNE subsidiaries: a stakeholder perspective. Journal of World Business 50, pp. 192-204.

[4] Birindelli, G., Ferretti, P., Intonti, M., Iannuzzi, A.P. (2015). On the drivers of corporate social responsibility in banks: evidence from an ethical rating model. Journal of Management and Governance 19, pp. 303-340.

[5] Elkington, J. (1997). Cannibals with forks: the triple bottom line of 21st century business. Oxford: Capstone Publishing Ltd.

[6] Carroll, A.B. (1979). A three-dimensional conceptual model of corporate performance. Academy of Management Review 184(4), pp. 497-505.

[7] Flavián, C., Guinalíu, M., Torres, E. (2005). The influence of corporate image on consumer trust: A comparative analysis in traditional versus internet banking. Internet Research 15(4), pp. 447-470.

[8] Bravo, R., Montaner, T., Pina, J. M. (2009). The role of bank image for customers versus non-customers. International Journal of Bank Marketing 27(4), pp. 315-334.

[9] National Bank of Romania. Available at: http://www.bnro.ro/Publicatii-periodice-204.aspx

[10] Grafström, M., Windell, K. (2011). The Role of Infomediaries: CSR in the Business Press During 2000-2009. Journal of Business Ethics 103, pp. 221-237.

[11] Guay, T., Doh, J. P., Sinclair, G. (2004). Non-governmental organizations, shareholder activism, and socially responsible investments: Ethical, strategic, and governance implications. Journal of Business Ethics 52, pp. 125-139.

[12] Maon, F., Lindgreen, A., Swaen, V. (2009). Designing and implementing corporate social responsibility: An integrative framework grounded in theory and practice. Journal of Business Ethics 87, pp. 71-89.

[13] Arenas, D., Lozano, J.M., Albareda, L. (2009). The Role of NGOs in CSR: Mutual Perceptions Among Stakeholders. Journal of Business Ethics 88, pp. 175-197.

[14] Keck, M., Sikkink, K. (1998). Activists beyond Borders: Advocacy Networks in International Politics. Ithaca, NY: Cornell University Press.

[15] Jonker, J., Nijhof, A. (2006). Looking Through the Eyes of Others: assessing mutual expectations and experiences in order to shape dialogue and collaboration between business and NGOs with respect to CSR. Corporate Governance: An International Review 14(5), pp. 456-466.

Perspective on Romania's Competitiveness after Integration into European Union

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Keywords: National competitiveness, Global Competitiveness Index, Romania, European Union

1. Introduction

We leave today in a global and a competitive world where everything is relative. Even the concept of competitiveness is relative, as there are many different definitions of economy competitiveness. A Google search on "World Competitiveness" or "Competitiveness of Nations" produces more than 35 million results [1].

The main aim of this research is:

- To identify and analyse crucial aspects of Romania's competitiveness after integration in the European Union (EU).
- To reflect the principal's challenges and evolutions for the Romanian economy and competitiveness.

2. Competitiveness: Concept and Measurement

What is economic competitiveness? There are actually a number of definitions. For example, The Cambridge Business English Dictionary defines competitiveness as "the ability of a business, a country, or a person to compete" and the Cambridge Advanced Learner's Dictionary & Thesaurus as "the fact of being able to compete successfully with other companies, countries, organizations, etc" [2].

In his book "International Productivity and Competitiveness", Bert G. Hickman (1992) present the concept of international competitiveness as "the ability to sustain, in a global economy, an acceptable growth in the real standard of living of the population with an acceptably fair distribution, while efficiently providing employment for substantially all who can and wish to work and doing so without reducing the growth potential in the standards of living of future generations" [3].

According to Michael E. Porter "a nation's competitiveness depends on the capacity of its industry to innovate and upgrade. Companies gain advantage against the world's best competitors because of pressure and challenge". Regarding the competition at the macro-economic or global level, Porter argues "that nations have become more [...] important" and "the basis of competition has shifted more and more to the creation and assimilation of knowledge [...]. Differences in national values, culture, economic structures, institutions, and histories all contribute to competitive success. There are striking differences in the patterns of competitiveness in every country; no nation can or will be competitive in every or even most industries. Ultimately, nations succeed in particular industries because their home environment is the most forward-looking, dynamic, and challenging" [4].

Stéphane Garelli, Professor Emeritus and founder of the IMD World Competitiveness Center states that "there is no magic formula for competitiveness", and "each country competes with its economic and social infrastructure or its policies" [1].

One of the most frequently cited definitions of competitiveness is the one proposed by the World Economic Forum (WEF). WEF defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the economy can achieve" [5, p. 3], [6, p. 11] Another way to think about what makes a country competitive is to consider how it actually promotes the wellbeing: it is a sort of "*virtuous circle*": a competitive economy is a productive one and productivity leads to growth, which leads to income levels and improved well-being. The productivity is important because it is the main factor driving growth and income levels. And income levels are very closely linked to human welfare. So, understanding the factors that allow for this chain of events to occur is very important.

In line with this aspect, Professor Garelli notes very well that "competitiveness is not an end" in itself, but "an extremely effective tool for achieving the prosperity of a nation". In his opinion, "this concept, which characterizes the collective success of a country, should lead to a higher goal, one that is more relevant to people's everyday lives: as a sense of economic and social well-being, and even happiness" [1].

To measures and ranks the economies of countries in terms of their competitiveness, World Economic Forum has developed the Global Competitiveness Index (GCI); this index represents a multifaceted and comprehensive proposal towards competitiveness measure.

Building on Klaus Schwab's original work of 1979, the World Economic Forum has used the Global Competitiveness Index (GCI) developed by Xavier Sala-i-Martín in collaboration with the Forum since 2005. The GCI combines 114 indicators that capture concepts that matter for productivity and long-term prosperity. These indicators are grouped into 12 pillars.

These pillars are in turn organized into three sub-indexes: basic requirements, efficiency enhancers, and innovation and sophistication factors (Fig. 1).

The three sub-indexes are given different weights in the calculation of the overall Index, depending on each economy's stage of development (as proxied by its GDP per capita and the share of exports represented by raw materials)

The GCI includes statistical data from internationally recognized organizations (the International Monetary Fund; the World Bank; and various United Nations' specialized agencies.) and indicators derived from the World Economic Forum's Executive Opinion Survey (that reflect qualitative aspects of competitiveness, or for which comprehensive and comparable statistical data are not available for a sufficiently large number of economies)[6, p. 11].

Even though GCI's calculation methodology has been improved over time, there are a number of criticisms to it; so, "different ways to calculate GCI for the countries that are in different stages of development allows to avoid punishing any country for investing in the factors that are needed in its' particular development stage" [7, p. 32]; or, this method makes GCI different for different countries; so the question is whether "indexes that are calculated in 5 different ways could be compared among each other" [7].

In addition, using survey data is widely criticized by some economists [8], who believe that opinions are subjective and depend upon the cultures and attitudes of people, and therefor is not a good basis for comparing countries competitiveness.

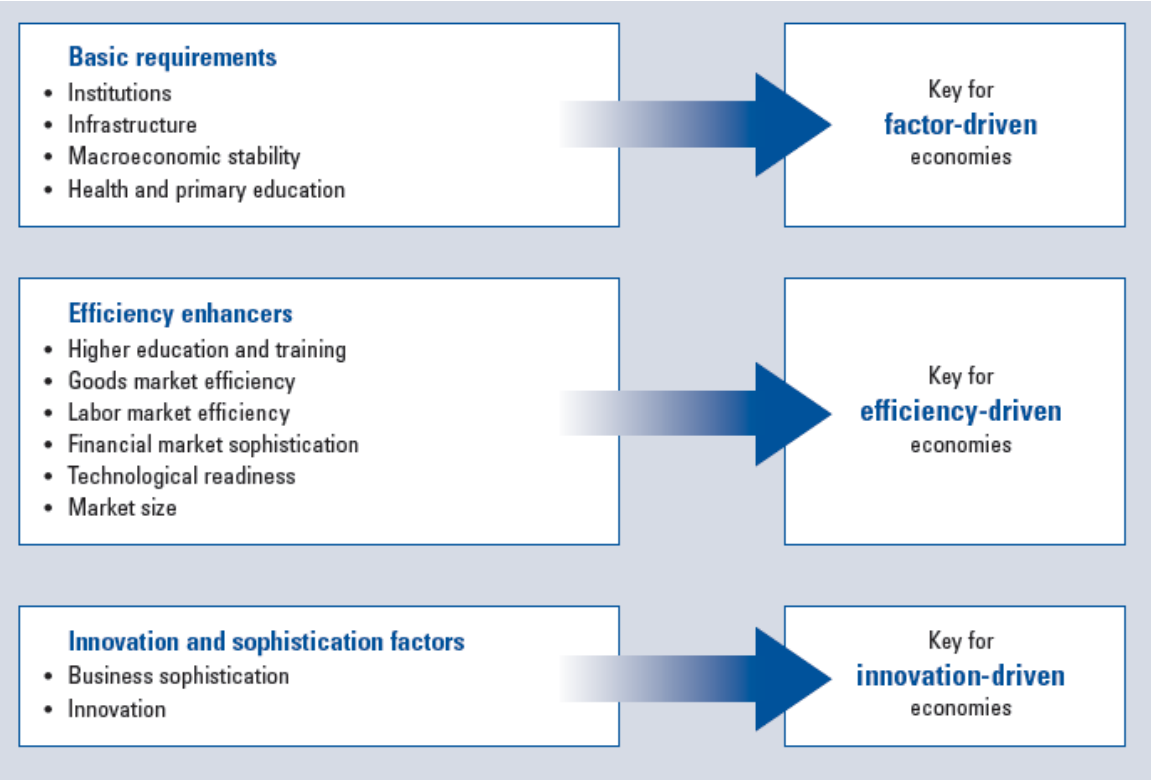

Fig. 1. The Global Competitiveness Index framework: the 12 pillars of competitiveness
Source: [5, p. 7]

3. Evolution of Romania's Competitiveness During Last Ten Years

In order to position Romania among the member countries of the European Union, we will first take a look at the evolution of GCI in these countries. The period taken into account is the last 10 years, respectively 2017-2018 compared to 2008-2009 (Table 1).

Table 1. The Global Competitiveness Index (GCI) for the European Union Member States

EU Member State	Rank 2008-09 (out of 137)	**GCI Score (1-7)**		EU Member State	Rank 2008-09 (out of 137)	**GCI Score (1-7)**	
		2017-2018	2008-2009			2017-2018	2008-2009
Netherlands	4	5.66	5.41	Malta	37	4.65	4.31
Germany	5	5.65	5.46	Poland	39	4.59	4.28
Sweden	7	5.52	5.53	Lithuania	41	4.58	4.45
United-Kingdom	8	5.51	5.30	Portugal	42	4.57	4.47
Finland	10	5.49	5.5	Italy	43	4.54	4.35
Denmark	12	5.39	5.58	Slovenia	48	4.48	4.50
Austria	18	5.25	5.23	Bulgaria	49	4.46	4.03
Luxembourg	19	5.23	4.85	Latvia	54	4.40	4.26
Belgium	20	5.23	5.14	Slovak Republic	59	4.33	4.40
France	22	5,18	5.22	Hungary	60	4.33	4.22
Ireland	24	5.1	4.99	Cyprus	64	4.30	4.53
Estonia	29	4.85	4.67	**Romania**	68	4.28	4.10
Czech Republic	31	4.77	4.62	Croatia	74	4.19	4.22
Spain	34	4.70	4.72	Greece	87	4.02	4.11

Source: [6]

We can see two situations: on the one hand, 10 of the 28 countries recorded declines in GCI, including the Scandinavian Peninsula (Denmark, Finland and Sweden), but also Slovak Republic, Cyprus, Greece and France; on the other hand, countries with significantly higher GCI values, such as Malta, Poland, the Netherlands, United-Kingdom, Germany, Italy, Estonia and Romania.

Romania's score from the World Economic Forum's research during de period 2006-2017 shows a slight improvement over the long term. As far as the last four years is concerned, the GCI score remains at the same level (4.28 or 4.3 out of maximum 7), although there are some variations in the overall rankings, with the best performance (rank 53) being achieved in 2015-2016. (Fig. 2)

Year	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Rank (out of)	73 (122)	74 (131)	68 (134)	64 (133)	67 (139)	77 (142)	78 (144)	76 (148)	59 (144)	53 (140)	62 (138)	68 (137)
Score	4.0	4.0	4.1	4.1	4.2	4.1	4.1	4.1	4.3	4.3	4.3	4.28

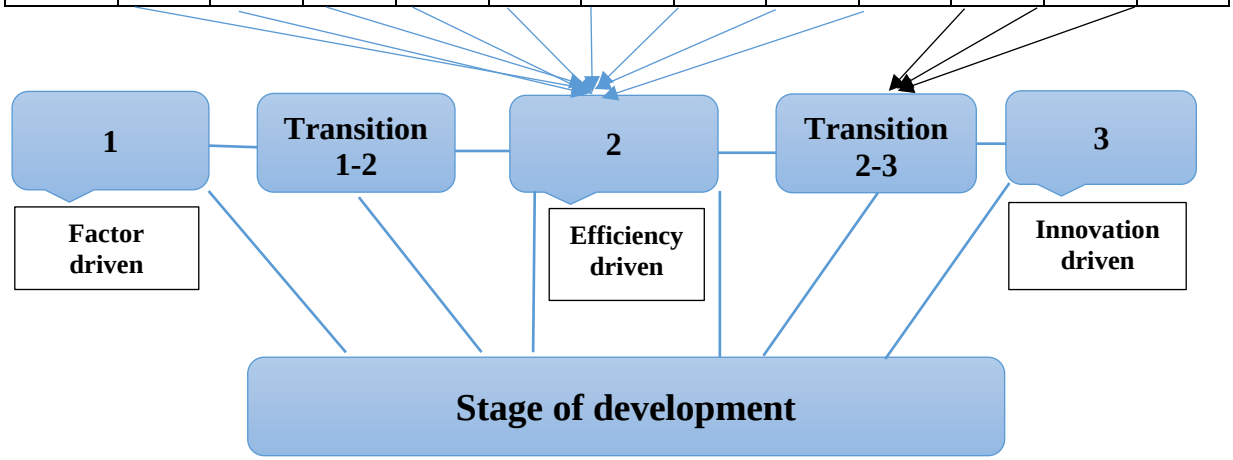

Fig. 2. The Global Competitiveness Index (GCI) for Romania during the period 2006-2018
Source: elaborated by authors on the basis of: [5], [6]

We can notice also, that since 2015-2016 Romania is considered to be under transition from the second to the third stage of development, hence, Romania's GCI is calculated taking 50% of efficiency enhancers, 11.2% of innovation and sophistication and 38.8% of basic requirements. [6, p. 320] We can notice also, that since 2015-2016 Romania is considered to be under transition from the second to the third stage of development, hence, Romania's GCI is calculated taking 50% of efficiency enhancers, 11.2% of innovation and sophistication and 38.8% of basic requirements. [WEF p. 320]

Romania's major problems are the same, known and largely attributable to the state: bureaucracy, poor infrastructure, difficult access to financing, incoherent tax system, etc. (Fig. 3)

Some indices included in Romania's economic profile for the year 2017-2018 show that even the business environment has important issues. In this regard, there are relevant figures like: capacity of talent retention – rank 132 out of 137; capacity to attract talent – rank 131 out of 137; willingness to delegate authority – 129 out of 137; extent of staff training – position 123/137; company spending on R&D – position 110/137; capability for innovation – position 109/137; ethical behaviour of companies – position 100/137; firm-level technology absorption – position 95/137; production process sophistication – position 94/137.

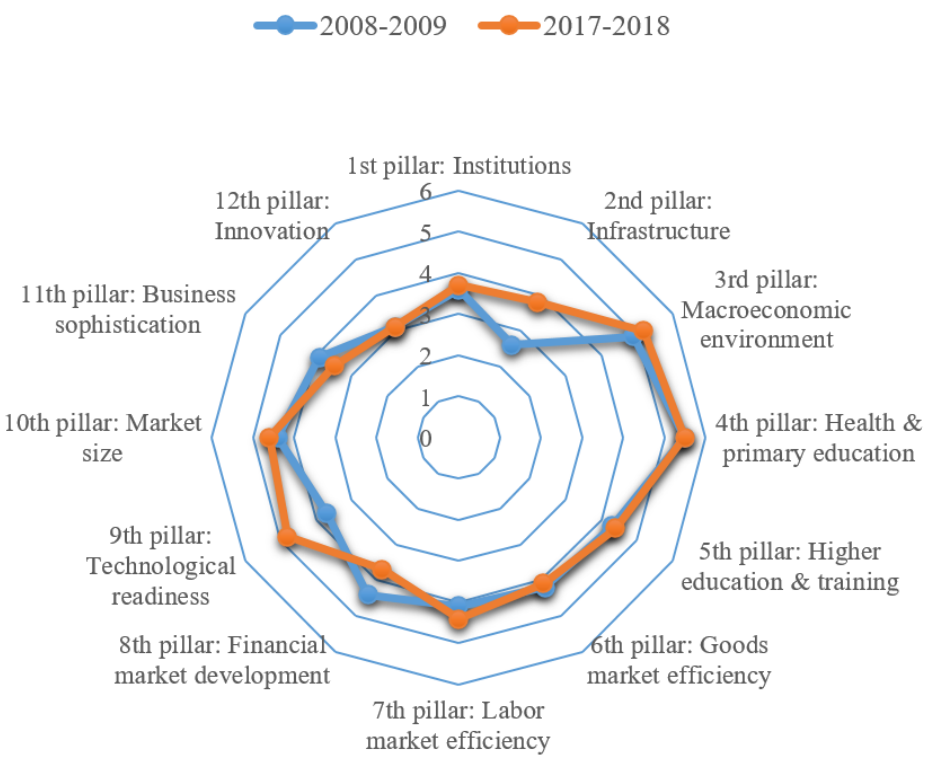

Fig. 3. Romania's GCI score: Gap and evolution by pillar
Source: By the authors, based on information from [5], [6]

From the regional perspective, Romania does best in the following areas: macroeconomic environment (value of the index 5.2), market size (value of the index 4.6) and technological readiness (value of the index 4.8), where the Internet bandwidth contributes a lot to the good score obtained in this pillar.

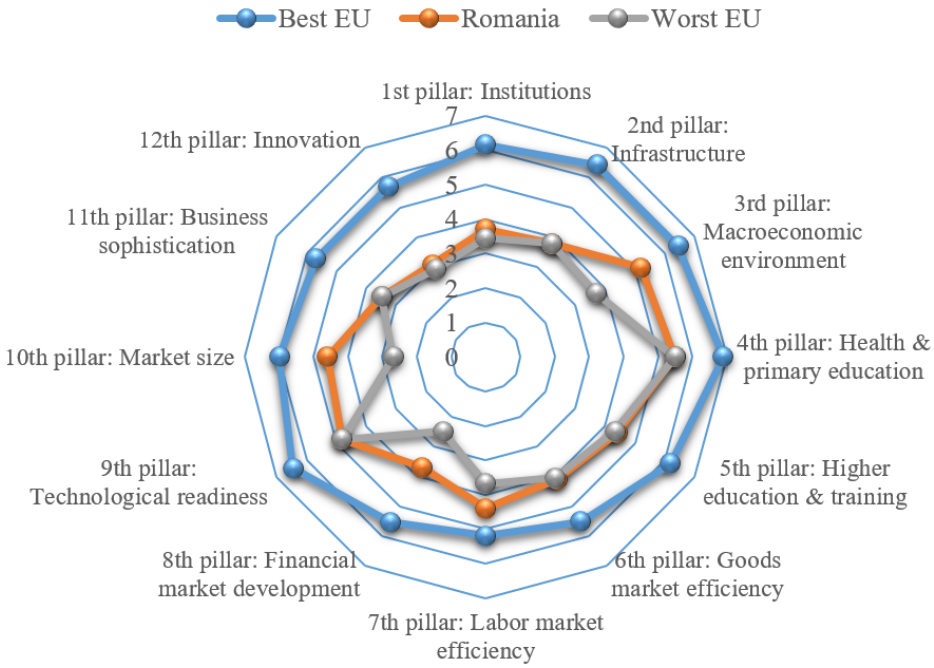

Fig. 4. GCI score range for Romania across the 12 pillars, 2017-2018 edition
Source: By the authors, based on information from [6]

In order to better highlight Romania's competitiveness within the European Union, we made a representation of the 12 pillars of GCI in the case of Romania, referring to the best and the worst performances in the EU (Fig. 4).

Large gaps between Romania and the best EU state persist in all of the pillars of competitiveness, especially in institutions, infrastructure, business sophistication, innovation and financial market development. These aspects are correlated with the most problematic factors for doing business in Romania, which shown that tax rates, inefficient government bureaucracy, inadequate supply of infrastructure, corruption, access to financing and inadequately educated workforce remain the most important issues to improve during the period analysed (Fig. 5 and 6).

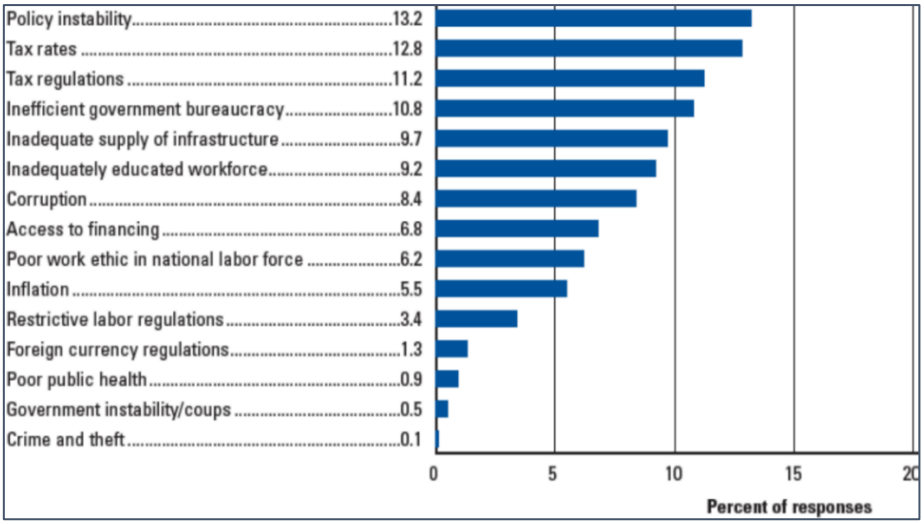

Fig. 5. Most problematic factors for doing business in Romania, 2008-2009 [5]

Note: From a list of 15 factors, respondents were asked to select the 5 most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings

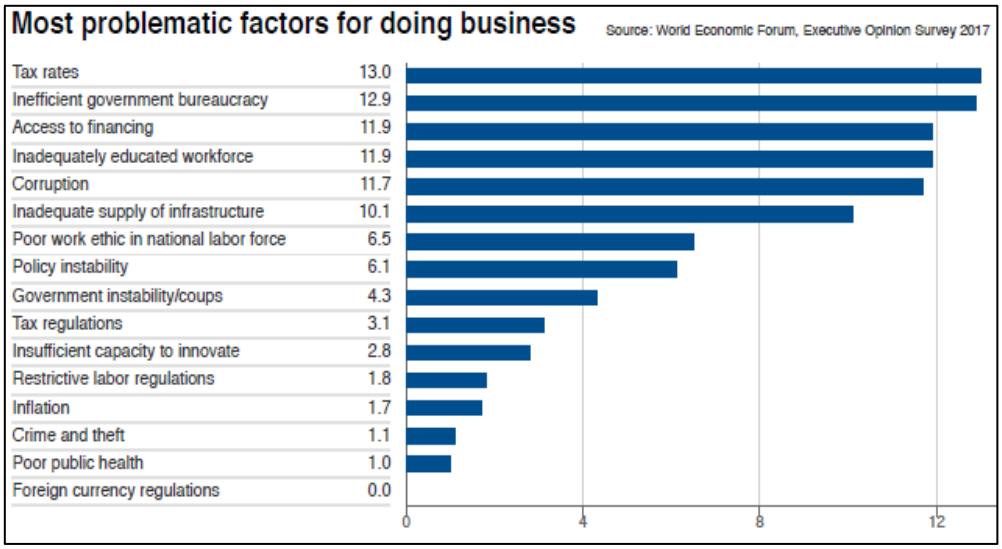

Fig. 6. Most problematic factors for doing business in Romania, 2017 [6]

Note: From a list of 15 factors, respondents were asked to select the 5 most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings

4. Conclusions

The Global Competitiveness Index (GCI), which has been published yearly by the World Economic Forum since 2005, assesses the ability of countries to provide high levels of prosperity to their citizens as well as the institutions, policies, and factors considered necessary for sustainable economic prosperity. The GCI combines 114 indicators that capture concepts that matter for productivity and long-term prosperity. The variables are grouped into twelve pillars, with each pillar representing an important, unique determinant of competitiveness. The GCI measures all indicators on a 1-7 scale and aggregates the scores to find a final overall GCI score. Although the ranking is useful to appreciate relative performance, the score itself is more informative for policymakers as a guide to action: is the economy improving? Are we making progress on the sub-indexes, pillars, concepts, and individual indicators? In 2017-2018 the place occupied by Romania in the GCI ranking is 68 globally and 26 at EU level, and the score is 4.28. GCI highlights some rather poor progress in terms of competitiveness for Romania during the last ten years.

Improving the determinants of competitiveness, as identified in the 12 pillars of the GCI, requires the coordinated action of the state, the business community, and civil society. It is the case for Romania too. All societal actors need to be engaged to make progress on all factors of competitiveness in parallel, which is necessary to achieve long-lasting results.

REFERENCES

[1] Garelli, S. (2018). 30 years of competitiveness research. Competitiveness is not an end but an extremely effective tool, IMD, available at https://www.imd.org/research-knowledge/articles/30-years-of-competitiveness-research/.

[2] Cambridge Business English Dictionary, Cambridge Advanced Learner's Dictionary & Thesaurus, available at https://dictionary.cambridge.org/dictionary/english/competitiveness.

[3] Hickman, B. G. (1992), "International productivity and competitiveness. An overview", in Hickman, B. G. (Ed), International Productivity and Competitiveness", New York: Oxford University Press, pp. 3-32.

[4] Porter, E.M (1990). The Competitive Advantage of Nations, Harvard Business Review, March-April Issue, available at https://hbr.org/1990/03/the-competitive-advantage-of-nations.

[5] Porter, E.M, Schwab, K. (2008).The Global Competitiveness Report 2008-2009, World Economic Forum, Geneva, 4 March, available at https://www.weforum.org/reports/global-competitiveness-report-2008-2009.

[6] Schwab, K., Sala-i-Martín, X. (2017).The Global Competitiveness Report 2017-2018, World Economic Forum, Geneva, 26 September, available at https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018.

[7] Petrylė, V. (2016). Does the Global Competitiveness Index Demonstrate the Resilience of Countries To economic crises? Ekonomika Vol. 95(3), pp. 28-36.

[8] Zinnes C., Eilat, Y. Sachs. J. (2001). Benchmarking Competitiveness in Transition Economies, Economics of Transition. 9(2), pp. 315-353.

PART II

Economic Decision of Business Entities

Financial Stability of Poland and PIIGS Countries

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Keywords: Financial stability, stability, financial system, Poland, PIIGS

1. Introduction

Financial stability issues have been present in the related literature for several decades but in result of the contemporary financial-economic crisis they have gained in importance again.

The economic breakdown exposed weaknesses of the regulatory and supervisory solutions existing in the financial system, raised awareness of how complex the problem of financial stability is, and showed negative consequences of the fact that there is no uniformity, both as regards definition of the financial stability concept and its measurement methodology.

The aim of the chapter is to analyse the concept of financial stability and the appraisal of financial stability of Poland and PIIGS countries (Portugal, Italy, Ireland, Greece and Spain), taking into account the sensitivity of the Polish financial system regarding changes of financial stability in the weakest Eurozone countries. This aim and the related areas of analysis determined the theoretical-empirical character of the chapter which consists of four main parts. In the first part the definition of financial stability and its measurement methodology are discussed. Further on the scope of the subject matter, spatial and time range of the conducted research, and the applied research method are presented. The next part contains the results of an empirical analysis of the financial stability. The most important conclusions resulting from the conducted analyses are presented in the final part of the chapter.

2. Financial Stability – Definition and Measurement Methodology

A commonly used uniform definition of financial stability (or, alternatively, stability of a financial system[1]) does not exist in the economic literature. According to A. Sławiński, financial stability takes place when the system of financial intermediation is free of disturbances exerting an adverse influence on the economy [1]. The financial stability is defined in a similar, although more detailed, way by A. Crockett, who applies this concept to the situation when changes in asset prices and difficulties of the financial institutions as regards fulfilment of their obligations do not disturb economic activity [2]. This Author adds that significant changes in asset prices and problems faced by many financial institutions are a threat to stability. However, the periods of rises and falls in asset prices, as well bankruptcies of individual financial institutions, are an inseparable part of economic life [2] after [3], [4].

J. M. Gonzáles-Páramo defines financial stability as the situation in which a financial system is able to resist shocks and meet financial imbalances, limiting the probability of such disturbances in the functioning of financial intermediation which could interrupt the process

[1] The concepts of financial stability and stability of the financial system are used alternatively both in the Polish related literature and in the publications in English (scientific papers, reports prepared by central banks and international financial institutions).

of effective allocation of savings between profitable investment projects [5] after [6]. G. J. Schinasi, in turn, analyses the concept of financial stability from the viewpoint of three fundamental functions of the financial system. Firstly, the financial system should facilitate an effective and efficient transformation of savings into investments. Secondly, the financial risk should be properly assessed and valued. Thirdly, the condition of a financial system should facilitate the absorption of unexpected shocks from both the financial and the real sphere.

According to the Author, the capability of a financial system to fulfil these functions fully guarantees the maintenance of financial stability and provides opportunities for the correct course of economic processes [7].

Financial stability problems belong to the field of interest of not only theoretical researchers but also central banks. The European Central Bank (ECB) assumes that financial stability is a state in which there is no accumulation of systemic risk. The systemic risk is defined as a threat that the process of providing the necessary financial goods and services by the financial system will be disturbed to such an extent that the economic growth and prosperity of the society may become significantly lower [8]. The National Bank of Poland (NBP) in turn, when using the financial stability concept, refers to the state in which the financial system fulfils its functions in a continuous and effective manner, even if there appear unexpected and adverse disturbances of considerable scale and low probability of occurrence.

The maintenance of financial system stability requires monitoring of the systemic risk which emerges in the financial system or in its environment and taking steps to eliminate or curb such a risk. A stable functioning of the financial system is a prerequisite to ensure sustainable economic growth over a long period of time [9].

Definitions of financial stability suggested by various Authors and central banks are formulated in a general way. It is frequently defined through the prism of conditions which should be fulfilled, if the functioning of an economy is to be undisturbed. Therefore, it is impossible to define univocally the criteria of financial stability. Thus, the quoted definitions should be perceived as features of the optimum state, setting directions for activities conducted within the frameworks of macroprudential policy. Moreover, NBP [9], and also M. Próchniak and K. Wasiak [10] rightly observe that in the era of globalization and strong connections between economic entities from different countries, the financial systems of individual economies are interdependent. Therefore, it is necessary to carefully monitor the risk arising not only in a given financial system but also in its environment.

P. Smaga [11, 12] conducted an in-depth analysis of the methods to measure financial stability. On the basis of the reviewed related literature, he differentiated five analytical approaches:

1) analysis of financial stability indicators, i. e., analysis of data referring to the financial and real sphere of economy (most popular are the financial stability indicators/financial soundness indicators (FSIs) published by International Monetary Fund (IMF) [13], then the macroprudential database published by European System of Central Banks (ESCB) [14] and the so-called risk dashboard published by European Systemic Risk Board (ESRB) [15]),
2) analysis of aggregated indices, which are built based on selected indicators (examples of this type of research can be found in the following works: [16], [17], [18], [19], [20],
3) stress tests-involving the complex analysis of resistance of the financial system to adverse shocks and its capability of "self-healing" (most central banks conduct stress tests, the results of which are published in their reports on financial stability)[2],
4) network analysis, i.e., systemic risk analysis by assessing the system's resistance to contamination effect (the study requires unique data on mutual exposures between

[2] See also: [21].

banks and non-banking financial intermediaries, "accessible" exclusively to the central bank),

5) modelling-construction of very complex econometric models of the economy taking into account various aspects of the financial system (examples of this type of research can be found in: [22], [23])[3].

Detailed analysis of the advantages and disadvantages of each approach led P. Smaga to the conclusion that it is impossible to assess unambiguously which of the presented methods is the best because none of them is free of defects. In the Author's opinion various methods should be used and the obtained results should be compared in order to receive a full picture of the financial system's resistance [11], [12].

Summing up, it seems that the greatest challenge for the researchers of those problems and for the main decision makers in the field of macroprudential policy is the lack of uniform, internationally comparable parameterization of the financial stability concept [25]. A correct assessment of the financial system's condition is the key requirement for an effective selection of instruments the aim of which is to limit the systemic risk [11].

3. Scope of the Subject Matter, Spatial and Temporal Range of the Empirical Analysis, Research Method

The subject of the conducted empirical analysis is financial stability of Poland and the most economically weak Eurozone countries, commonly called PIIGS countries (**P**ortugal, **I**reland, **I**taly, **G**reece, **S**pain). As a result of the 2007 + crisis, the collapse of these economies significantly affected the stability and sustainability of the euro area as well as the entire European Union. For this reason, the research is also focused upon analysing the sensitivity of the Polish financial system to changes in the financial system of the PIIGS countries.

To measure the state of the financial system, the second analytical approach according to the systematics of P. Smaga was used, i.e., the analysis of aggregated indices of financial stability. The most important advantages of this method are the possibility of including several important variables and conducting a transparent comparative analysis. The most important disadvantage is the high degree of arbitrariness in the selection of variables.

The aggregate financial stability index for Poland and the PIIGS countries was built on the basis of selected five indicators of financial stability from the so-called basic list, which contains core financial stability indicators (FSIs) and is published by the IMF:

- Regulatory Capital to Risk-Weighted Assets ($\mathbf{x_1}$) and Non-performing Loans Net of Provisions to Capital ($\mathbf{x_2}$) which relate to the capital adequacy of deposit and credit institutions,
- Non-performing Loans to Total Gross Loans ($\mathbf{x_3}$) referring to the quality of assets of deposit and credit institutions,
- ROA (Return on Assets, $\mathbf{x_4}$) and ROE (Return on Equity, $\mathbf{x_5}$) related to the income and profitability of deposit and credit institutions[4].

In the analysis semi-annual data were used. The research covered the period of the second half of 2008 – first half of 2017. The spatial scope, choice of financial stability indicators, their frequency and time range of the study, were conditioned by availability of possibly the longest, comparable statistical data series to facilitate error-free reasoning.

To measure financial stability of the analysed economies, the linear ordering method was used. In the related literature this method is also known as a multidimensional comparative analysis or the method of taxonomic measure. It is based on the arrangement of objects

[3] On using econometric models in financial stability analyses see also: [24].
[4] For a detailed definition of each indicator see: [26]. The data come from the IMF database: [14].

according to some directly non-measurable feature (financial stability) which can be characterized by other features (five financial indicators selected for the analysis). The linear ordering procedure consists of several successive steps, out of which the most important are: selection of diagnostics variables, determination of the type of variables, bringing them to comparability and determining the aggregation formula[5]. The use of linear ordering method facilitated a construction of the synthetic and comparable index of financial stability in Poland (IFS_{PL}) and in the PIIGS countries (IFS_{PIIGS}).

After selecting the variables, one should determine the type of each variable, i.e. indicate which one is a stimulant and which one is a destimulant. The stimulant is a feature positively correlated with a synthetic feature, i.e., a feature whose higher values are desirable from the point of view of the general criterion considered (in this analysis: x_1, x_4, x_5). Destimulant is a negatively correlated feature with a synthetic feature (in this analysis: x_2, x_3). The next step of the linear ordering procedure is to bring the variables to comparability. For this purpose, their character should first be unified, and then the normalization process should be carried out, which allows to bring variables measured in equal units to comparability. The unification of the nature of variables usually consists on transforming all variables to stimulants. The destimulant is transformed according to the following formula:

$$x_j^s = 1/(x_j^d + c_j), \tag{1.1}$$

where: x_j^s – stimulant, x_j^d – destimulant, c_j – positive constant (in this analysis = 1).

One of the most common method of data normalization is unitarization, as a result of which variables take values from the range [0, 1]. Unitarization was carried out according to the following formula:

$$u_{ij} = (x_{ij} - min\{x_{ij}\})/(max\{x_{ij}\} - min\{x_{ij}\}), \tag{1.2}$$

where: u_{ij} – variable after normalization, $min\{x_{ij}\}$ – the minimum value of the variable j, $max\{x_{ij}\}$ – the maximum value of the variable j.

Another issue that should be considered in the linear ordering procedure is the weighting of individual variables. In the related literature, due to the problems with finding the correct formal and statistical method, it is usually recommended not to give weight to the features or to use expert weights, if available [29]. Therefore, aggregation of data was made by summing the normalized values of variables with the same weights. The aggregation formula was as follows:

$$IFS = 0.2 \times u_1 + 0.2 \times u_2 + 0.2 \times u_3 + 0.2 \times u_4 + 0.2 \times u_5, \tag{1.3}$$

where: IFS – aggregated index of financial stability, $u_1 - u_5$ – variables $x_1 - x_5$ after normalization.

The linear ordering procedure was carried out for Poland (receiving the financial stability index for Poland – $\boldsymbol{IFS_{PL}}$) and for each country from the PIIGS group. Next, the financial stability index for the entire group of PIIGS countries ($\boldsymbol{IFS_{PIIGS}}$) was calculated, by computing the arithmetic average on the basis of financial stability indexes for individual economies from the group PIIGS.

Subsequently, regression analysis was conducted to examine the relationship between the financial stability of Poland (IFS_{PL}) and financial stability of the PIIGS countries (IFS_{PIIGS}).

For this purpose, the following regression model was estimated:

[5] For a detailed discussion of the linear ordering procedure, see, e.g., [27], [28], [29].

$$IFS_{PL} = \alpha \times IFS_{PIIGS} + ß, \quad (1.4)$$

where: IFS_{PL} – dependent variable, IFS_{PIIGS} – independent variable[6], α – coefficient, $ß$ – intercept.

To estimate the regression function, the Classical Least Squares Method was applied. An assessment of diagnostic usefulness of the estimated models was made by analysing the coefficient of determination R^2. Statistical significance of particular parameters was defined by means of the Student's t-test at the level of significance $p=0.05$ [30]. Normality of the residual component decomposition was checked by the Doornik-Hansen test. Autocorrelation of the residual component was verified on the basis of the Breusch-Godfrey test, whereas heteroskedasticity of the residual component was examined using the White test [31].

On the basis of the estimated model, sensitivity of Poland's financial system regarding changes of financial stability in the weakest Eurozone countries was examined using the elasticity index [32]:

$$E_{IFS_{PL}} = \alpha \times \frac{\overline{IFS}_{PIIGS}}{\overline{IFS}_{PL}}, \quad (1.5)$$

where: E_{IFSPL} – sensitivity indicator of the polish financial system, α – coefficient from the estimated regression model (1.4), $\frac{\overline{IFS}_{PIIGS}}{\overline{IFS}_{PL}}$ – quotient of the average values of the indexes IFS_{PIIGS} and IFS_{PL}.

4. Results of the Analysis of Financial Stability Systems in Poland and in the PIIGS Countries

Application of the linear ordering procedure led to calculation of the financial stability indexes in Poland and in the PIIGS countries. Its course in the studied period of time is illustrated by the graph (Fig. 1).

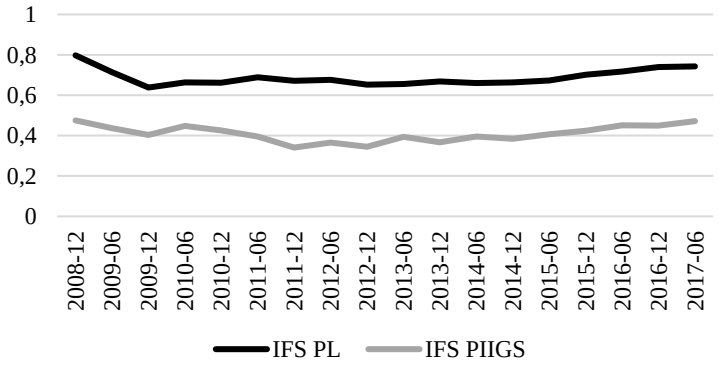

Fig. 1. Financial stability in Poland and in the PIIGS countries
Source: Own materials

As mentioned earlier, the calculated indicators may assume the values from the range [0,1] and have the character of a stimulant. This means that higher values translate into a higher level of financial stability (and vice versa). The analysis of the chart leads to the clear conclusion that Poland's financial system was more stable throughout the whole researched period[7]. Visual analysis of the evolution of stability measures in Poland and in the PIIGS

[6] The words "dependent" and "independent" can be misleading. It is worth mentioning that the methodology used in this analysis cannot actually prove causality. It can only prove whether variables are positively or inversely related to each other.

[7] Detailed comparative analysis of stability indices for Poland and for each economy from the PIIGS group has led to the conclusion that the Polish financial system was characterized not only by higher stability compared to

group over time revealed the existence of links between their financial systems, as the financial stability indices in both areas were characterized by a similar development tendency.

Based on its analysis, three sub-periods may be distinguished. First, a period of decline, lasting from the second half of the year 2008 to the second half of 2010. Second, the period of alternate increases and decreases, lasting until the end of the year 2014. The last – the third period which was the time of slow improvement, beginning in the year 2015[8].

Estimation of the econometric model was preceded by stationarity test of the indicators accepted for the analysis. The stationarity of the series was examined by applying the KPSS stationarity test [33] at the level of significance 0.05[9]. Results of the estimated regression equation confirmed the existence of significant quantitative relationship between the financial systems of Poland and the PIIGS countries in the analysed research period (Table 2).

Table 2. Results of estimation of the regression model (1.4) for the dependent variable – financial stability index for Poland (IFS_{PL}) in the period of the second half of 2008 – first half of 2017

Independent variable	α (coefficient)	*t*-Statistics	*p*-value
IFS_{PIIGS}	0.718	3.483	0.00307
ß (intercept)	0.394	4.834	0.00018
R^2=0.517948, ^ R^2=0.487820; *F*=12.13112, *p*=0.003072; Doornik-Hansen test: statistics = 1.64221, *p*=0.439945; Breusch-Godfrey test: statistics = 1.58776, *p*=0.246929; White test: statistics = 3.93202, *p*=0.140014.			

Source: Own calculations

The value of the coefficient determination indicated that 52% of the variance in the financial stability index in Poland can be explained by the financial stability index of PIIGS countries. The obtained form of the model shows that there exists a relation between condition of the financial system in the PIIGS countries and the financial situation in Poland.

A positive value of the coefficient at variable IFS_{PIIGS} (**0.718**) means that improvement in the financial situation of the PIIGS countries was accompanied by an increase of the financial stability indicator in Poland and vice versa. The estimated model was the basis for determination of Poland's financial system sensitivity regarding changes of financial stability in the PIIGS countries. The calculated elasticity indicator assumed the value of **1.208**. This means that a percentage increase (decrease) of the financial stability index in the PIIGS countries was accompanied by an increase (decrease) of the analogical measure of financial stability in Poland's economy by 1.208%. This indicates the relatively high sensitivity of the Polish financial sector regarding the changes in financial stability index of the PIIGS group.

This may mean a higher susceptibility of the Polish economy in comparison to the PIIGS countries to the external economic shocks. While the improvement of the condition of the Polish financial system to a positive external shock does not raise concerns, its disproportionately large negative changes in response to the negative external impulse may be disturbing. The results obtained in the study suggest, therefore, the need for increased observation of the external environment while analysing the condition of the Polish financial

the PIIGS group treated as a whole, but also in relation to each PIIGS economy separately. At the Reader's request, the author can share these analysis results.

[8] Unfortunately, the obtained results cannot be referred to the studies by other authors (mentioned in the Section 1) due to a different scope of subject matter and spatial, as well as temporal, range.

[9] The empirical value of the KPSS test statistics for the investigated indicators of financial stability in Poland and in the PIIGS countries amounted, respectively, to: 0.176 and 0.187, whereas the KPSS test critical value, with the assumed level of significance, equaled 0.487. Therefore, there were no grounds to reject the null hypothesis assuming stationarity of both series.

system and the introduction of mechanisms to increase its resistance to negative impulses coming from outside of the economy[10].

5. Conclusions

The aim of the chapter was to analyse the concept of financial stability and the appraisal of financial stability of Poland and PIIGS countries, taking into account the sensitivity of the Polish financial system regarding changes of financial stability in the weakest Eurozone countries. The analysis of the related literature conducted at the beginning led to a conclusion that there is no uniformity in defining and measuring financial stability. Insufficient concretization of the concept of stability and the fact that no leading, commonly used method to measure this phenomenon has been accepted may make it difficult to draw conclusions about the real state of the financial system in a given country. In addition, the analysis becomes even more difficult, due to the strong dependence of individual countries' financial systems on their external environment.

The analysis of financial stability in Poland and in the PIIGS countries showed that throughout the research period the Polish financial system was more stable than its European counterpart. In addition, it was found that both financial systems were characterized by a highly similar development tendency. The study confirmed the relatively strong vulnerability of the Polish financial system to external economic shocks. Therefore, it seems necessary to carefully observe the external environment when analysing the condition of the Polish financial system and to introduce mechanisms to increase its resistance to negative impulses coming from outside of the economy.

The results obtained from the research should be an incentive for in-depth studies covering a longer research period and more European countries. At first, the author planned to do so, but the lack of full data series was the reason why she had to limit her analysis. In addition, in further research, the methodology should be applied that allows for inference at the cause-and-effect level.

REFERENCES

[1] Sławiński, A. (2011). Stabilność finansowa, in: A. Sławiński (ed.), Polityka pieniężna, Wydawnictwo C.H. Beck, Warszawa, p. 51.
[2] Crockett, A. (1997). The theory and practice of financial stability, in: P. B. Kenen, M. B. Riccardi (ed.), Essays in international finance, Princeton University, No. 203, pp. 2-3.
[3] Kiedrowska, M., Marszałek, P. (2002). Stabilność finansowa – pojęcie, cechy i sposoby jej zapewnienia, p. I, Bank i Kredyt, March, p. 22.
[4] Puławski, M. (2012). Odpowiedzialność banków centralnych za stabilność finansową, in: W. L. Jaworski, A. Szelągowska, (ed.), Współczesna bankowość centralna, CeDeWu, Warszawa, p. 117.
[5] Gonzáles-Páramo, J. M. (2007). Progress towards a Framework for Financial Services Authority, Speech at the OECD World Forum on "Statistics, Knowledge and Policy", 28 June, p. 6.
[6] Dudkiewicz, B. (2016). Europejski Bank Centralny i nadzór finansowy w Unii Europejskiej a stabilność finansowa, CeDeWu, Warszawa, p. 37.
[7] Schinasi, G. J. (2009). Defining financial stability and a framework for safeguarding it, Central Bank of Chile Working Papers, No. 550, pp. 2-16.
[8] ECB, http://www.ecb.europa.eu/ecb/tasks/stability/html/index.pl.html [access: 10.12.2018].
[9] NBP, (2017). Raport o stabilności finansowej, Warszawa, p. 3.

[10] More on this topic see: [34].

[10] Próchniak, M., Wasiak, K. (2014). Analiza stabilności systemu finansowego w krajach UE na podstawie ilościowych wskaźników makroekonomicznych, Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu, Vol. 56, No. 5, p. 54.
[11] Smaga, P. (2014). Pomiar stabilności finansowej i rola banku centralnego, Bezpieczny Bank, No. 4 (57), Bankowy Fundusz Gwarancyjny, Warszawa, pp. 29, pp. 32-43.
[12] Smaga, P. (2014). Rola banku centralnego w zapewnianiu stabilności finansowej, CeDeWu, Warszawa, p. 128.
[13] IMF, data available on: http://data.imf.org/regular.aspx?key=61404590 [access: 10.12.2018].
[14] ESCB, data available on: http://sdw.ecb.europa.eu/browse.do?node=9689335 [access: 10.12.2018].
[15] ESRB, data available on: https://www.esrb.europa.eu/pub/rd/html/index.en.html [access: 10.12.2018].
[16] *Maliszewski*, K. (2009). *Measuring stability* of the *Polish* financial *system* by means of a synthetic index, Collegium of Management and Finance, Warsaw School of Economics.
[17] Das, S.U., Quintyn, M., Chenard, K. (2004). Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis, International Monetary Fund WP/04/89.
[18] *Lo Duca, M., Peltonen, A. T. (2011). Macro financial vulnerabilities and future financial stress* – assessing systemic risks and predicting systemic events, Working Paper Series No. 1311.
[19] Holló, D., Kremer, M., Lo Duca, M. (2012). CISS – a composite indicator of systemic stress in the financial system, ECB working Paper Series, No. 1426.
[20] Adrian, T., Brunnermeier, M.K. (2011). CoVar, Staff Report, No. 348, Federal Reserve Bank of New York.
[21] Dupreya, T., Klaus, B., Peltonenc, T. (2017). Dating systemic financial stress episodes in the EU countries, Journal of Financial Stability, Vol. 32.
[22] Galvao, A. B., Giraitis, B., Kapetanios, G., Petrova, K. (2016). A time varying DSGE model with financial frictions, Journal of Empirical Finance, Vol. 38, Part B.
[23] Kolasa, M., Rubaszek, M. (2015). Forecasting with DSGE Models with financial frictions, International Journal of Forecasting, Vol. 31, Issue 1.
[24] BIS, Bank for International Settlements. (2012). Models and tools for macroprudential analysis, Working Paper No. 21.
[25] Urbanowicz, Z. (2018). Stabilność finansowa a stabilność makroekonomiczna na przykładzie polskiej gospodarki, Ekonomia, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, No. 529, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, pp. 370-371.
[26] IMF, http://datahelp.imf.org/knowledgebase/topics/69739-concepts-and-definitions [access: 10.12.2018].
[27] Hellwig, Z. (1968). Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom ich rozwoju oraz zasoby i strukturę wykwalifikowanych kadr, Przegląd Statystyczny, No. 4.
[28] Poczta-Wajda, A. (2010). Nowoczesne techniki analityczne w kształceniu na studiach ekonomicznych, p. I, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań.
[29] Sokołowski, A. (2010). Analizy wielowymiarowe, Statsoft Polska, Kraków.
[30] Wooldridge, J.M. (2001). Econometric Analysis of Cross Section and Panel Data, MIT Press, Cambridge, pp. 116-134.
[31] Maddala, G.S. (2008). Ekonometria, Wydawnictwo Naukowe PWN, Warszawa, pp. 244-245, pp. 292-293.
[32] Studenmund, A.H. (2014). Using Econometrics. A Practical Guide, Pearson New International edition, 6 ed., p. 225.
[33] Kwiatkowski, D., Phillips, P.C.B, Schmidt, P., Shin, Y. (1992). Testing the Null Hypothesis of Stationarity Against the Alternative of a Unit Root: How sure are we that economic time series have a unit root? Journal of Econometrics, Vol. 54, pp. 159-178.
[34] Galuscak, K., Horvath, R. (2018). Challenges for financial stability in Europe, Journal of Financial Stability, Vol. 36.

Tax Benefits Regarding the Party in the Government in the Spanish Regions: Its Use as a Fiscal Policy in Favour of Families

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1. Tax Benefits Conceded Regarding Party in Government in Spanish Regions

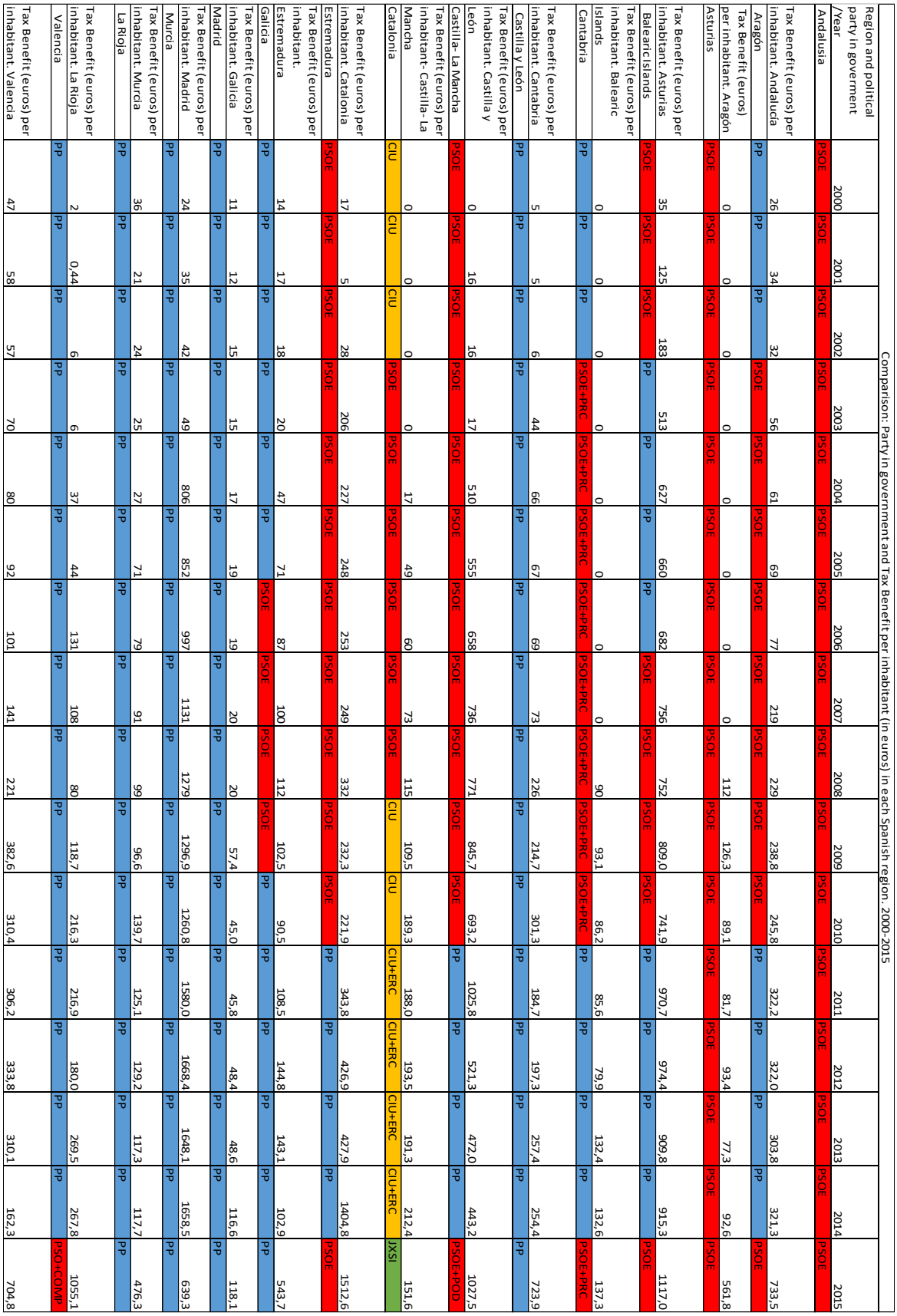
In the following table, a relevant issue is analysed in the quantitative analysis of tax benefits in the different Spanish regions. We use the method described by [1] Graham & Smith and [2] Mendoza & Tesar. In this case, the object of analysis is the fiscal benefits granted in the regions; measured in euros per inhabitant of each region and year. Once the above is calculated, the result is compared with the party in power or rather, the government of each region. This shows a growing influence of the state in the economy and in the lives of people, according to [3].

The analysis extends over fifteen years, from the year 2000 to the year 2015. The result obtained, euros per capita; it is obtained by dividing the fiscal benefits granted by the region in favour of the family that year, among the population of the region in that same year.

The aforementioned analysis will serve to show whether the tax benefit granted to the family favol, acts as expected, growing when governing leftist/socialist parties (in theory more likely to defend and increase rights and social protection of citizens) and decays with right/conservative parties or the opposite occurs. The analysis only includes the Spanish regions that follow the Common System Financing System, called [4] LOFCA; excluding Navarra and the Basque Country.

In the following table, a reference to the Spanish political parties that have governed during the years under study appears. In blue, the Popular Party (hereinafter referred to as PP), a conservative and center-right party, appears. In red colour the Spanish Socialist Workers Party (PSOE) is considered, considered a progress party and located in the center-left. In the case of Catalonia, there is some peculiarity because nationalist and independence party parties appear. On the one hand appears Esquerra Republicana de Cataluña (hereinafter ERC), progressive and leftist party and on the other hand appears Convergencia y Unió (hereinafter CIU); being a conservative party and center right. After the separation of CIU, and its union with ERC in the last elections (paradoxical as it may seem), arises the party in Catalonia called Junts pel Yes (hereinafter JxS) that is difficult to catalogue.

Fig. 1. Comparison: Party in government and Tax Benefit per inhabitant (in euros) in each Spanish region 2000-2015



Region and political party in goverment /Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Andalusia	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE
Tax Benefit (euros) per inhabitant. Andalucía	26	34	32	56	61	69	77	219	229	238,8	245,8	322,2	322,0	303,8	321,3	733,5
Aragón	PP	PP	PP	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PP	PP	PP	PP	PSOE	PSOE
Tax Benefit (euros) per inhabitant. Aragón	0	0	0	0	0	0	0	0	112	126,3	89,1	81,7	93,4	77,3	92,6	561,8
Asturias	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE
Tax Benefit (euros) per inhabitant. Asturias	35	125	183	513	627	660	682	756	752	809,0	741,9	970,7	974,4	909,8	915,3	1117,0
Balearic Islands	PSOE	PSOE	PSOE	PP	PP	PP	PP	PSOE	PSOE	PSOE	PP	PP	PP	PP	PSOE	PSOE
Tax Benefit (euros) per inhabitant. Balearic Islands	0	0	0	0	0	0	0	0	90	93,1	86,2	85,6	79,9	132,4	132,6	137,3
Cantabria	PP	PP	PP	PSOE+PRC	PSOE+PRC	PSOE+PRC	PSOE+PRC	PSOE+PRC	PSOE+PRC	PSOE+PRC	PP	PP	PP	PP	PSOE+PRC	PSOE+PRC
Tax Benefit (euros) per inhabitant. Cantabria	5	5	6	44	66	67	69	73	226	214,7	301,3	184,7	197,3	257,4	254,4	723,9
Castilla y León	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP
Tax Benefit (euros) per inhabitant. Castilla y León	0	16	16	17	510	555	658	736	771	845,7	693,2	1025,8	521,3	472,0	443,2	1027,5
Castilla- La Mancha	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PP	PP	PP	PP	PP	PSOE+POD
Tax Benefit (euros) per inhabitant- Castilla- La Mancha	0	0	0	0	17	49	60	73	115	109,5	189,3	188,0	193,5	191,3	212,4	151,6
Catalonia	CiU	CiU	CiU	PSOE	PSOE	PSOE	PSOE	PSOE	CiU	CiU	CiU+ERC	CiU+ERC	CiU+ERC	CiU+ERC	JXSí	
Tax Benefit (euros) per inhabitant. Catalonia	17	5	28	206	227	248	253	249	332	232,3	221,9	343,8	426,9	427,9	1404,8	1512,6
Estremadura	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PSOE	PP	PP	PP	PP	PSOE	
Tax Benefit (euros) per inhabitant. Estremadura	14	17	18	20	47	71	87	100	112	102,5	90,5	108,5	144,8	143,1	102,9	543,7
Galicia	PP	PP	PP	PP	PP	PP	PSOE	PSOE	PSOE	PP	PP	PP	PP	PP	PP	PP
Tax Benefit (euros) per inhabitant. Galicia	11	12	15	15	17	19	19	20	20	57,4	45,0	45,8	48,4	48,6	116,6	118,1
Madrid	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP
Tax Benefit (euros) per inhabitant. Madrid	24	35	42	49	806	852	997	1131	1279	1296,9	1260,8	1580,0	1668,4	1648,1	1658,5	639,3
Murcia	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP
Tax Benefit (euros) per inhabitant. Murcia	36	21	24	25	27	71	79	91	99	96,6	139,7	125,1	129,2	117,3	117,7	476,3
La Rioja	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP
Tax Benefit (euros) per inhabitant. La Rioja	2	0,44	6	6	37	44	131	108	80	118,7	216,3	216,9	180,0	269,5	267,8	1055,1
Valencia	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PSO+COMP	
Tax Benefit (euros) per inhabitant. Valencia	47	58	57	70	80	92	101	141	221	382,6	310,4	306,2	333,8	310,1	162,3	704,8

Source: Own elaboration based on population data of the I.N.E., CC.AA; and Budgetary laws of the Regions of Andalusia, Aragon, Cantabria, Castilla-León, Castilla-La Mancha, Catalonia, Estremadura, Galicia, Murcia, La Rioja, Balearic Islands, Madrid, Asturias and Valencia. 2000 to 2015 [5].

2. Analysis Results: Party in government and Tax Benefit per Inhabitant (in Euros) in Each Spanish Region. 2000-2015

Conducting a regional analysis by region, we can check whether after the election year or if after an election year and a change of government, the tax benefit granted has increased, maintained or decreased. With this we can observe the trend of the use of the fiscal benefit in each region [6].

In the first place, in the region of Andalusia during the period under consideration, three regional elections took place (2004, 2008 and 2012). In the first two electoral periods the fiscal benefit granted in the region increased (from 61 to 69 euros per inhabitant and from 229 to 238.8 respectively); while in the latter, it decreases (from 322 to 303.8) euros per inhabitant. The party in government is a center-left party.

Second, the region of Aragón. In her the periods of election were (2003, 2007 and 2011).

After the elections of 2007 and 2011 the fiscal benefit grows in comparison with the previous year. In the first case (2007) there was no change of political party, while in 2011 there was (from socialist government is passed to conservative government) and even so the tax benefit grows from 81.7 to 93.4 euros per inhabitant.

With regard to the region of Asturias, it presents an electoral period (2003, 2007, 2011 and 2012). In this community always governs a progressive political party (PSOE) and certainly there is no clear trend because sometimes it grows and other decreases the fiscal benefit, after the year of elections.

The region of the Balearic Islands presents an electoral period in the years (2003, 2007 and 2011). In the only year in which there is electoral change, moving from a socialist government to a conservative government, the fiscal benefit falls slightly.

The region of Cantabria, presents an electoral period in the years (2003, 2007 and 2011). In this community there is a curious situation and that is when there is an election year; Regardless of whether there is a change of government or not, the fiscal benefit grows (44 to 46 euros, 73 to 226 and 184.7 to 197.3 respectively).

In the region of Castilla y León, the electoral period coincides again in the years (2003, 2007 and 2011). In this community a conservative party (PP) has always governed in all the years under study. In the first two years in which there are elections (2003 and 2007); the per capita tax benefit grows while in the last (2011) the per capita tax benefit granted in this region decreases.

Regarding the Castilla-La Mancha region, it presents an electoral period in the years (2003, 2007 and 2011). In this community, what has been described for the region of Cantabria occurs again; both when there is an election year; Regardless of whether there is a change of government or not, the fiscal benefit increases after these three periods.

As for the region of Catalonia, first of all it is necessary to emphasize in the last years the complex panorama that lives this Spanish region. The electoral period in that region has been in the years (2003, 2006, 2010 and 2012). In the first two, a progressive party (PSOE) governs without change and in the first period the tax benefit per capita grows (from 206 to 227 in 2009 but in the second (2006) it decreases from 253 to 249 slightly. periods the CIU-ERC coalition governs and after both electoral periods the tax benefit per inhabitant increases.

In the region of Extremadura, the electoral period takes place in the years (2003, 2007 and 2011). Again, in this region what has already been cited for Cantabria and Castilla La-Mancha; both when there is an election year; Regardless of whether there is a change of government or not, the fiscal benefit increases after these three periods.

Regarding the region of Galicia, the electoral period occurs in the years (2001, 2005, 2009 and 2012). In this community the conservative party (PP) governs almost uninterruptedly.

When there are changes of government in this community, or the previous one is maintained; no clear trend is observed.

In the region of Madrid, the electoral period is in the years (2003, 2007 and 2011). In this community, always governed by a conservative party (PP) in all the years observed in the series, we see how, after the electoral period; the tax benefit granted per inhabitant grows (49 to 806, 1131 to 1279 and 1580 to 1668.4 euros per inhabitant, respectively).

The region of Murcia presents an electoral period in the years (2003, 2007 and 2011) as well as in other regions already analysed. This region, like Madrid, has always been governed by a conservative party in all the years of the series studied. In all of them, after the electoral period; there is an increase in the tax benefit granted per inhabitant: 25 to 27, 91 to 99 and 125.1 to 129.2 respectively.

In the case of the La Rioja region, it presents an electoral period in the years (2003, 2007 and 2011) as well as in other regions already analysed. In this case, a Conservative Party (PP) has always ruled this region. After the first elections, the tax benefit granted increases from 6 to 37 euros per inhabitant, but in the two subsequent electoral periods it decreases.

Finally, regarding the Valencia region; It presents an electoral period in the years (2003, 2007 and 2011) as well as in other regions already analysed. In this case, a conservative party also governs every year of the series studied. In this case (contrary to what happened in Rioja, for example) and similar to what happens in Madrid, in all the years after which there were elections, the per capita tax benefit granted increases. It goes from 70 to 80, 141 to 221 and 306.2 to 333.8 euros per inhabitant respectively [7].

3. Conclusions

After the analysis made from the previous table, the evolution in the concession of fiscal benefits with the political party in the government is related. It analyses whether the progressive parties (left and center-left) grant more tax benefits (as it is a type of fiscal protection policy) and the conservative parties (center and center-right) grant less tax benefits.

In the case of communities governed by a single party, the analysis may be somewhat erroneous since there has been no alternation and the same party has experienced the increase and reduction of the fiscal benefit. They are the cases of Andalusia (always governed by the PSOE) and Castilla y León, Murcia, Madrid, La Rioja and almost the entire Valencian Community (governed by the PP).

In the years in which there is an alternation of parties, there is also no clear correlation that the change from one party to another implies a change of trend in the allocation of fiscal benefits, therefore the political factor does not seem relevant in its increase or decrease.

REFERENCES

[1] Graham, J. R., & Smith, C. W. (1999). Tax incentives to hedge. The Journal of Finance, 54(6), pp. 2241-2262.

[2] Mendoza, E. G., & Tesar, L. L. (2003). A quantitative analysis of tax competition v. tax coordination under perfect capital mobility (No. 9746). National Bureau of Economic Research.

[3] Yzaguirre, V. E. (2013). Del estado benefactor al estado subsidiario. In Actas del I congreso de economía y libertad (p. 64).

[4] Law 22/2009 of December 18th, which regulates the financing system of the Autonomous Communities of the common system and Cities with the Statute of Autonomy and certain tax regulations are modified. BOE number 305, of 19/12/2009.

[5] Náñez Alonso, S.L. "Análisis de la equidad y la eficiencia de los beneficios fiscales a favor de la familia en España: Estudio comparativo" Tesis Doctoral, 2019.

[6] Náñez Alonso, S.L. (2018). Analysis of the Tax Benefit in favour of the Family in the Taxes Assigned in the Spain of the Autonomies: Period 2000-2015. Derecho PUCP, 80, p. 461.
[7] Náñez Alonso, S.L. (2016). "Evolución de los beneficios fiscales en la Comunidad Valenciana en el periodo 2000-2015: comparativa con el resto de autonomías de régimen general". XVI Congreso de Investigadores en Economía Social CIRIEC. 19 a 21 de Octubre de 2016, Universidad de Valencia, Valencia.

Tax Incentives in Rural Environment as Economic Policy and Population Fixation. Case study of Castilla-León Region

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1. Introduction

Law 22/2009, of December 18, which regulates the financing system of the Autonomous Communities of common regime and Cities with Statute of Autonomy and certain tax regulations are modified; continued with the situation created by Law 21/2001 [1]. On the one hand, it keeps the assignment of different taxes in order that the Autonomous Communities (hereinafter A.A.C.C.) can continue to be financed and again regulates the scope of the assignment of the different taxes. As an example in the Personal Income Tax (hereinafter P.I.T.), the A.A.C.C. can "*regulate the amount of personal and family minimum applicable for the calculation of the regional tax*", also "*may increase or decrease in the amounts corresponding to the minimum of the taxpayer and the minimum by descendants, ascendants and disability*" and apply deductions in the fee integral autonomy for "*personal and family circumstances or for non-business investments*". In the case of the Inheritance Tax (hereinafter I.T.), they will also be able to regulate aspects such as "*reductions of the taxable base*" since the A.A.C.C. will be able to create, for the "*donations*" transmissions, as well as for the mortis causa, the reductions that they consider convenient, as well as "*deductions and bonuses of the quota*". We see therefore how the A.A.C.C. based on the existing financing system can regulate very important aspects of the taxes assigned by the State. As we see, this has the advantage that each autonomous community can adapt the circumstances of these taxes to "*the economic or social circumstances of the Autonomous Community concerned*" [2]. In this way, fiscal incentives are configured as an instrument of economic policy that can be applied by the autonomous communities. "*If we refer to the rural world, we can affirm without fear of being wrong that the public powers have a very important role within the set of actors that intervene in it*" [3] We analyse the case of incentives related to the rural environment in the Spanish region of Castilla-León. All this from the perspective that "*the role of those states that are going to take over the problems posed by social needs not covered by the change of the productive model has been substantially modified*" [4].

2. Fiscal Incentives Applicable to Rural Environment in Region of Castilla y León

In this section, these tax incentives are analysed quantitatively and qualitatively in the Personal income tax, the inheritance tax and in property transfer tax and documented legal acts.

2.1. Tax Incentives Applicable to Rural Environment in Personal Income Tax

Resident taxpayers in this region can apply the following deductions on the autonomous community fee in 2017 and 2018:

By birth or adoption of children (provided that the person resides in municipalities of less than 5,000 inhabitants) may be deducted from your income tax 1363.5 euros for the first, 1991.25 euros for the second and 3173.85 for the third and successive[1]. This deduction is also compatible with two others when there are multiple deliveries or simultaneous adoptions (deduction of 901 euros) or when an adoption occurs (784 euros of deduction or for international adoptions, 3,625 euros) [5].

With regard to housing, there are specific measures to promote the establishment of population in rural areas such as:

Deduction of 15% of the amounts paid for the acquisition or rehabilitation of housing by young people in rural areas of Castilla-León. This is configured as a great incentive to attract young people to rural areas. There is also a deduction of 15% of the amounts invested, with a maximum amount of 20,000; when the housing rehabilitation is carried out in a rural area for rent. Finally, within the deductions for housing, there is a deduction of 25% of the amount of the amounts paid for the rental of a home (with a limit of 612 euros); when the habitual residence is located in rural nuclei [5].

Initially, all these measures are a help and an advantage for those who want to establish their residence in rural areas and start their business or work in it.

2.2. Tax Incentives Applicable to Rural Environment in Inheritance Tax

The fiscal legislation of Castilla-León provides that when the value of an agricultural operation located in the territory of Castilla-León, or of usufruct rights over it, is included in the taxable income of the Inheritance Tax, a reduction of 99% the same will be applied. It is necessary among other criteria that the acquisition corresponds to the spouse, descendants or adopted, ascendants or adopters and collaterals, by consanguinity, up to the third degree of the deceased [5].

There is also a remarkable measure, applicable both to rural and urban areas, consisting of a 99% reduction for acquisitions by inheritances of family businesses and shares in them, provided that the purchasers are the same as in the previous section and the company has its headquarters in Castilla-León [5]. These measures seem to favour the continuity of a business on the one hand, and on the other, that these people continue to live in the region. Therefore, it encourages economic activity and on the other hand tries to fix the population.

2.3. Tax Incentives Applicable to Rural Environment in Tax on Patrimonial Transfers and Documentary Juridical Acts

In the form of Onerous Patrimonial Transfers, the following reduced rates are applicable in the transfer of real estate and in the constitution and assignment of real rights over the same, except real rights of guarantee:

A reduced rate of 0.01% if the property is going to be the habitual residence, all the purchasers are under 36 years old, it is their first home for all purchasers and the property is located in a municipality of Castilla-León of less than 3,000 inhabitants or less than 10,000 if it is more than 30 kilometres from the provincial capital and has a value of less than 135,000 euros. Note that the general rate would be 8%, so the deduction is very important [5].

In the form of Documented Legal Acts, the following reduced rates are applicable in notarial documents:

[1] Which supposes an improvement of 35% in the deductible amount, that the one that would apply people resident in municipalities of more than 5,000 inhabitants; which are 1,010 euros for the first, 1,475 euros for the second, 2,351 euros for the third and successive.

A subsidized rate of 0.01% if they document the acquisition of homes that will constitute the habitual residence, all purchasers are under 36 years old, it is their first home for all purchasers and the property is located in a municipality of Castilla-León of less than 3,000 inhabitants or less than 10,000 if it is more than 30 kilometres from the provincial capital and has a value of less than 135,000 euros. Note that the general tax rate is 2%, which is a strong fiscal incentive [5].

3. Quantitative Evolution of Incentives Granted in Inheritance and in Patrimonial Transfers and Documentary Juridical Acts

In this section we analyse the quantitative evolution of the tax benefits applicable to rural areas in the Castilla-León region in the last five years (2013-2017 periods). All data have been extracted from the Taxes of Castilla-León website, and are expressed in euros and in the number of taxpayers who have received these tax benefits [6].

As we can see in Table 1 both the number of people benefited by these fiscal incentives to the rural environment and the amounts granted (except in the latter case) grow year after year. These tax benefits mean a decrease in the income of the Castilian public coffers.

Table 1. Tax incentives on patrimonial transfers and documentary juridical acts applicable to rural areas and Tax incentives on Inheritance Tax acts applicable to the rural areas. Amount and number of people benefited per year

Tax incentives on patrimonial transfers and documentary juridical acts applicable to the rural areas	**Year**	**2013**	**2014**	**2015**	**2016**	**2017**
Reduced rate of 0.01% per acquisition by young people of properties located in rural areas	Amount (in euros)	3.011.830 €	4.050.730 €	5.497.160 €	7.363.780 €	7.572.600 €
	Number of people benefited	554	758	1016	1267	1.359
Reduced rate of 0.01% for documents proving the sale or mortgage of the habitual residence for young people under or equal to 36 years, in rural areas	Amount (in euros)	229.410 €	316.650 €	321.000 €	285.110 €	331.950 €
	Number of people benefited	136	185	186	169	191
Tax incentives on Inheritance Tax acts applicable to the rural areas	Year	2013	2014	2015	2016	2017
Reduction by acquisition of agricultural holdings	Amount (in euros)	1.341.300 €	1.034.930 €	1.401.390 €	1.246.000 €	1.241.000 €
	Number of people benefited	85	106	142	125	128
99% reduction for acquisitions for inheritances of family businesses and shares	Amount (in euros)	22.660.430 €	20.027.540 €	24.572.600 €	11.050.000 €	15.385.000 €
	Number of people benefited	370	369	516	406	446

Source: own elaboration based on Fiscal Data of "Junta de Castilla-León" [6]

4. Analysis of Population and Economic Activity in Castilian Rural Environment

We analyse in this section the evolution of the population in rural areas of Castile as well as the evolution of economic activity. The purpose is to verify if these fiscal incentives have had any impact in the struggle for population fixation and in the incentive to carry out economic activities.

Regarding the analysed variables, the first of them, relative to the population in municipalities of less than 5000 inhabitants, we see (cf. Table 2) that since the beginning of the series until 2017, the population has been reduced by 94,074 people (4% less) of the existing in 2013. Certainly, the number of deaths can be largely at fault, but it is not observed that fiscal incentives have helped to stop this depopulation trend in rural Castilian with the attraction of young people to whom they are directed the tax benefits. Remember that these incentives, both the monetary amount and the number of beneficiaries grow year after year.

So, maybe stop these incentives would be very effective. With regard to the economic variables measured, the number of mercantile companies fluctuates and fluctuates. Since the beginning of the series the creation of new mercantile companies falls year after year in Castilla, except in 2015.

Table 2. Population and economic activity in Castilian rural environment

Variables analysed and year	2013	2014	2015	2016	2017
Castilla y León (population in municipalities of up to 5000 inhabitants)	2.519.875	2.494.790	2.472.052	2.447.519	2.425.801
COMPANIES CREATED in Castilla y León: Total number per year	3.168	3.000	2.847	3.014	2.857
TOTAL AGRARIAN SURFACE in Castilla y León: Thousands of hectares	2.036,74	2.064,08	1.989,61	2.013,89	No data
TOTAL AGRICULTURAL PRODUCTION in Castilla y León: THOUSANDS OF TONS	8.746,75	6.689,02	7.001,54	9.049,63	No data
LIVESTOCK, TOTAL MILK PRODUCTION: Million Liters	1.204,50	1.256,11	910,102	No data	No data

Source: Own elaboration, based on statistical data from the Regional Government of "*Castilla-León*" [7]

The agrarian surface and the agricultural production behave in a similar way to the previous economic variable oscillating. In the case of the agricultural area, it does not present a clear pattern of behaviour as it grows in 2014 and 2016; and this represents a problem, because "*the local alimentary systems in many cases are the main economic motor of the majority of the rural Spanish regions*" [8].

The agrarian production is the variable that seems to behave better, because except for one year of fall, the rest always grows.

Finally, regarding livestock and milk production, we see how in 2015 there was an abrupt drop in production, which shows on the one hand the crisis that the sector is experiencing.

5. Conclusions

From this chapter we can draw the following conclusions regarding fiscal incentives in the rural areas of Castilla-León, as economic policy and population fixation:

1. Despite the economic effort made through tax incentives, and therefore through the non-entry into the farm, of the amount owed, the results that are observed are very poor.

2. Regarding the tax incentives related to the family and the rural environment, we see how, despite increasing the amount allocated through incentives to families year after year, the population in the Castilian rural environment decreases, and so does the activity economic
3. A clear and evident pattern is not observed, by which the fiscal incentives in favour of the economic activities in the rural environment (creation of mercantile, agrarian activity and livestock activity) is reinforced in such a way that the variables studied grow year after year
4. Although fiscal incentives in favour of the rural environment can be a positive instrument, it would be necessary to consider whether the fiscal effort made by the public entity is achieving the expected results or whether other more effective policies should be sought.

REFERENCES

[1] España. Ley 22/2009, de 18 de diciembre, por la que se regula el sistema de financiación de las Comunidades Autónomas de régimen común y Ciudades con Estatuto de Autonomía y se modifican determinadas normas tributarias.

[2] Náñez Alonso, S. (2018). Análisis del beneficio fiscal a favor de la familia en los tributos cedidos en la España de las autonomías: Periodo 2000-2015. *Derecho PUCP*, (80), pp. 469-470.

[3] Enciso de Yzaguirre, V., & Roche López, C. (2006). Fiscalidad y desarrollo rural en España. Los beneficios fiscales en el mundo rural español. *CIRIEC-España, revista de economía pública, social y cooperativa*, (55). p. 93.

[4] Yzaguirre, V. E. (2013). Del estado benefactor al estado subsidiario. In *Actas del I congreso de economía y libertad* (p. 64).

[5] Castilla y León. Decreto Legislativo 1/2013, de 12 de septiembre, por el que se aprueba el texto refundido de las disposiciones legales de la Comunidad de Castilla y León en materia de tributos propios y cedidos. Publicado en Boletín Oficial de Castilla y León de 18 de Septiembre 2013.

[6] Portal Tributario de la Junta de Castilla y León. Sección Tributos: Estadística https://tributos.jcyl.es/web/jcyl/Tributos/es/Plantilla100/1284189416830/_/_/_ [fecha de consulta: 26 de Octubre de 2018]

[7] Sistema de Información Estadística (SIE). Junta de Castilla y León: Sección Coyuntura Económica https://www.jcyl.es/sie/sas/broker?_PROGRAM=mddbpgm.v2.indexv2.scl&_SERVICE=saswebl&_DEBUG=0&menu=index [fecha de consulta: 26 de Octubre de 2018]

[8] Castellano Álvarez, F. J. (2016). La política de desarrollo rural de la Unión Europea y sus efectos en Extremadura durante la década de los años noventa. El estudio del caso de la comarca de La Vera. p. 132.

Fluctuations in Stock Market Indices and Macroeconomic Business Cycle

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1. Introduction

The volatility of the economic situation affects all spheres of the economy, both in the real and financial aspect. Literature of the subject indicates two-way relations between the stock exchange situation and the state of the business climate in the so-called real economy. On one hand, the stock exchange market situation is a factor determining the dynamics of economic growth. The financial market is followed by the phenomenon of mobilization of financial surpluses of entities with savings, which is the cheapest way to finance investment projects in enterprises, carried out mainly in the upward phase. A well-developed stock market is an important mechanism of links between the financial market and the real economy, which also contributes to the lower demand of business entities for other sources of financing operations, including foreign capital financing. In turn, the impact of the economic situation on the stock exchange cycle results from the interest of individual investors of institutional financial instruments in the situation of observed increases in stock market indexes. In addition, one can observe the reaction of investors' behaviour to the macroeconomic data, which are crucial for the economy and are published by statistical office or the announced changes in economic policy implemented by the government.

In the literature of the subject, relatively more attention is paid to the impact of the stock market on the real economy. In this context, reference is made to the business cycle leading properties of stock exchange indexes relative to the real state of the economy. However, the scale of these anticipation is diversified and depends on a specific example of the economy, its structure, as well as the level of development of the financial market in a given country. In view of the regularities formulated above, such circumstances appear in recent years, which on the one hand have a significant impact on the fluctuations of stock exchange indexes, and at the same time do not show any connections with the so-called foundations of the real economy or its main macroeconomic indicators. They often come from the world of politics, ecology issues (so-called Climate Pacts), social media spheres (Facebook), migration phenomena (Europe) or even terrorist acts.

The aim of the chapter is to assess the leading properties of the main stock exchange indexes in the face of the real economy fluctuations, measured by GDP dynamics. The basis of this assessment are changes in the morphology and correlation coefficients between the time series of the four main Warsaw Stock Exchange indexes, i.e., WIG, WIG20, mWIG40 and sWIG80, and the time series of GDP illustrating the synthetic state of the real economy in Poland.

2. Interdependence Between the Macroeconomic Business Cycles and Stock Market Cycles – Literature Review

In the history of economic thought in the field of economic fluctuations, stock exchange cycles were discussed in the context of their relations with real economic cycles [15]; [16].

Differences in the relationship between the above-mentioned cycles, discussed in the literature, concerned the reasons of the formation and directions of impulse transmission. In general, there are two main groups of theories explaining the mechanism of transmission of economic impulses between the stock exchange and the real economy. The first group is based on the theory of market information efficiency and the theory of rational expectations.

The second group is based on the mechanism of changes in the prices of capital and the income effect [9].

The theory of market information effectiveness is based on the concept of rational expectations. According to the assumptions of this theory, expectations are identical to the optimal forecast, using all available information [17], and the prices of financial instruments fully reflected all available information [2]. According to proponents of this theory, this means that the stock market situation does not have a direct impact on the real economy, and is rather a derivative of the situation in the real economy. The possibility of forecasting the economic situation based on stock exchange indexes results from the fact that the prices of listed assets contain discounted values of future profits of companies. Assuming that investors chose the shares of companies with potentially high profit prospects, share prices increased in line with expectations regarding their ability to generate revenues. Profits of the companies depend on the economic situation, which is why the stock indexes reflected the future value of the national income [9]. However, the results of empirical research contradicted the theory of effective markets, because the occurrence of phenomena deviating from its assumptions was proved. They were described as capital market anomalies [7]; [4]. Moreover, modern scientific research confirms that contemporary capital markets have fractal properties, i.e., that in the time series characterizing these markets a long memory has been detected [14].

According to the second concept explaining relationship between the business cycle of the real economy and the stock market cycle, the main mechanisms for transforming stock market incentives into macroeconomic growth were real changes in the price of capital and the income effect of price changes. Changes in the price of capital affected the economy in three ways. First of all, the increase in prices of shares reduced the cost of acquiring new capital on the stock market by stimulating the new share issues, resulting in a growing supply of them and an increase in emission prices. As a result, companies could obtain more funds for investments, which had a positive impact on the entire economy (the opposite situation was also true in the case of a downturn in the stock market). Secondly, the increase in the prices of listed assets resulted in an increase in their market value and contributed to the increase in creditworthiness. In turn, greater creditworthiness affected the lenders' price reduction of capital and increased its availability. Finally, the investment increased, which resulted in the improvement of the general economic situation. Thirdly, it was assumed that the volume of private investments was a derivative of expectations regarding the future rate of economic growth, which meant that the expected recovery increased the expected rate of return on investment. The increase in share prices was the result of an increase in the level of investments made in the perspective of future economic growth. In this variant, the increase in stock exchange indexes was a signal to increase investment and the economic growth was the effect of the so-called self-fulfilling forecasts [9]. Along with the three channels of transmissions mechanisms of the stock exchange on the economy, there was a parallel mechanism related to the income effect of share price changes. It was related to the influence

of capital markets on private consumption, which increased during the stock market boom, while it fell during the bear market.

According to the representative of the Austrian school in the economy, J. Huerta de Soto, the most important reason for the recurring business cycles was a fractional reserve banking system, resulting in credit expansion leading to distorting the production structure [13]. The construction of a partial-reserve monetary system enabled banks' credit expansion, including the forces that lead to the process of increasing and decreasing lending [13]. According to Huerta de Soto, the source of loans in the economy should only be the private and voluntary savings, which limited the scale of consumption. In the fractional reserve system, however, credit expansion was possible with unchanged and even growing consumption volumes, as banks made money creation on the basis of partial reserve money. As a consequence, in the expansion phase of the business cycle, banks granted new loans on a massive scale and reduced interest rates, with unchanged consumption levels. At the same time, the prices of capital goods and stock exchange prices increased and there was an artificial extension of the production structure and the emergence of accounting profits in the capital goods sector. This situation led to the boom phase, in which the demand for employees in the capital goods sector increased, wages went up and the stock market was accompanied by bull market combined with speculation. Ultimately, this led to a breakdown and the economy was going through a crisis phase in which employees and entrepreneurs spent more money on consumption. The growth rate of credit expansion ceased to grow, interest rates increased and the stock market collapsed. As Huerta de Soto states, the continuous growth in the stock market never indicates a favourable economic situation. On the contrary, it shows the excessive credit expansion of banks, deprived of coverage in real savings, which causes artificial bull market, invariably leading to a serious stock exchange crisis [19].

In the literature, stock exchange indexes are perceived as a business cycle barometer. This is due to the belief that changes in share prices are the result of decisions of investors who, having specific information about the profit perspectives of listed companies, determine the most effective investment directions. The investors' convictions about the upcoming improvement in the economic situation are increasing the demand for financial assets, which has a positive effect on the level of stock exchange indices. It also translates into an increase in real investment. In turn, a negative assessment of the future economic situation causes a drop in the level of indexes and also has a negative impact on real investments. Hence the conclusion that the values of stock exchange indexes should forecast the prospective economic situation. However, the mechanism described above may occur on the assumption that the structure of listed companies reflects the entire economy, financial investments on stock exchanges have an impact on material investments and stock exchange investors' decisions are rational, which means that they choose prospective directions of investing [21].

In addition, changes in the exposure of stock exchange investors along with a change in expectations regarding future share prices must be related to the high liquidity of the stock market.

Research on the interrelationship between the economic situation and the levels of stock exchange indices are widely described in the literature. For instance, Binswanger in 2004 showed that a strong relationship between the stock market and future economic activity in the US existed, but it disappeared in the early 1980s. A similar phenomenon was observed in relation to the Japanese economy. In turn, Sawhney, Anoruo and Feridun in 2005 showed that in the US during the examined period, economic growth was the reason for changes in share prices, not the reverse [18]. What is more, Gajdka, Brzeszczyński and Schabek [10] came to other conclusions, i.e. studying analogous relationships in Canada, they found the existence of feedback [10].

Studies on the relationship between changes in share prices and movements in the economic situation were also conducted by Polish scientists in relation to national conditions.

According to Fundowicz, in the initial period of the Warsaw Stock Exchange, i.e., until December 1995, there was no relationship between fluctuations on the stock exchange and in the Polish economy. The situation changed after 1996, when correlation coefficients both WIG and GDP growth rate increased significantly and the WIG index in the analysed period was leading a quarter of the rebound from the bottom turning point, and compared to the peak of business cycles was a simultaneous or lagged indicator [9].

Subsequent research conducted by the Institute for Market Economics Research confirmed that the WIG index reflects changes in the economic situation, and time shifts in stock exchange index changes may be both anticipatory and delayed in relation to changes in GDP, depending on the analysed business cycle phase.

Gajdka, Brzeszczyński and Schabek showed that there was a positive correlation between changes in the WIG index and GDP changes in the years 1996-2008, yet GDP changes were the cause of WIG shifts [10].

One of the latest research results published in 2014 by Gajdka and Pietraszewski indicate that in the initial period of economic development of the capital market in Central and Eastern Europe, the relationship between the rate of return on shares and the rate of GDP growth was significant and positive. Researchers formulated a hypothesis that in countries where the capital market is in the phase of initial development, the relationship between the real economy and the capital market is positive and stronger than in countries with much more mature capital markets, in which in the long run there is a negative correlation between the results obtained in the real economy and the results on the capital market [11]. The reduction of the correlation strength between the stock exchange and the economic situation was also confirmed in the Witz study [20].

3. Methodological Issues of Stock Exchange Main Indexes Compared to GDP Business Cycles in Poland

In this chapter it is researched the characteristics of Polish stock exchange main indexes compared to the reference series, represented by GDP time series. The analyzed indexes are: WIG, WIG20, mWIG40, sWIG80. To identify the main characteristics of analyzed indexes, quarterly data were analyzed. In case of stock exchange main indexes, the score of each indexes value reached at the end of each quarter was taken into consideration. What concerns GDP, the quarterly data also was analyzed. The time horizon of the analysis embraces quarterly time series growth data from 1st quarter 1996 to 4th quarter 2018. Such period resulted from comparable data access from Central Statistical Office.

Current economic analysis focus on two types of cyclical fluctuations: the classic cycles and growth cycles. The basis of the above-mentioned types of cycles is the morphology and course of individual variation. Choice of individual business cycle concept involves specific business cycle turning points location, as well as duration of the phases. However, this does not mean, that economic empirical studies are doomed to relativism. This requires the prior adoption of specific analytical assumptions, the wording adopted definitions and theoretical research evidence [6].

The basis of these analysis are growth cycles. This method allows for the identification of business cycles, even when there is a long period of continuous growth. Then the absolute value analysis does not bring clear results. This is due to the relatively short time series with uniform in terms of methodology of statistical data. Short time series allow to extract the growth cycles, while for observation classic cycles are required for at least several years of the time series [19].

The first step in the analysis of economic fluctuations, is to eliminate the seasonality. The most comprehensive seasonal alignment methods are X-12-ARIMA and TRAMO/SEATS. As a result, in this paper recommended by Eurostat method of seasonal adjustment was used, i.e., TRAMO/SEATS[1] [12].

For the estimation of cyclical factor from seasonally adjusted time series of empirical data, the Christiano-Fitzgerald band-pass filter was used, which allows to obtain estimates of the cycle both at the beginning and at the end of time series. The procedure for marking the turning points was based on the Bry-Boschan method [1]. For the analysis of morphological features of cyclical fluctuations, the measures of volatility and dispersion were used.

Additional measures embraced the length of the various phases and cycles, standard deviation, coefficient of variation, and the amplitude and intensity of cycles and cross-correlation analysis. On the basis of the results obtained, the morphological characteristics analysis of industrial production in the various regions of the country was conducted.

To assess the changes in the time of the level of synchronization of business fluctuations in the main stock exchange indices, and the fluctuations in GDP constituting the reference series in the study, recursive correlation coefficients were calculated in three variants:

- correlation coefficient with a moving 5-year window (RK 1);
- correlation coefficient with the expanding forward sample (5-year starting sample) (RK 2);
- correlation coefficient with the expanding backward sample (5-year starting sample) (RK 3).

The source of statistical data regarding the real GDP growth rate on a quarterly basis was the Central Statistical Office, while the main stock exchange indices at the end of subsequent quarters were taken from the database published by the Warsaw Stock Exchange.

4. Empirical Analysis of the Main Warsaw Stock Exchange Indexes Fluctuations

Analysing the degree of cyclical convergence between the time series of the main stock market indices in Poland and the GDP cycle, the value of the coherence coefficient was calculated. Coherence coefficient allows to determine the strength of concurrency between two time series in a predetermined range of fluctuations. In this work, this band was for quarterly data (6-40). The value of the coherence coefficient informs to what extent the cyclic variations of the empirical variable X are able to explain the cyclic variations of the reference series. The value of the coefficient ranges from 0 to 1. The closer the coherence value to the unity, the more interdependent the examined series. The results of calculations are presented in Table 1 and the graphical analysis is presented in Graph 1.

Table 1. Bivariate statistics with the GDP reference series

Time series	Coherence Ratio	Mean Delay	Cross-correlation		
			r_0	r_{max}	$t_{max}^{(1)}$
WIG	0.29	1.06	0.43	-0.57	-4
WIG 20	0.30	0.86	0.47	-0.58	-4
mWIG 40	0.28	1.21	0.39	0.74	2
sWIG 80	0.26	0.71	0.45	0.61	1

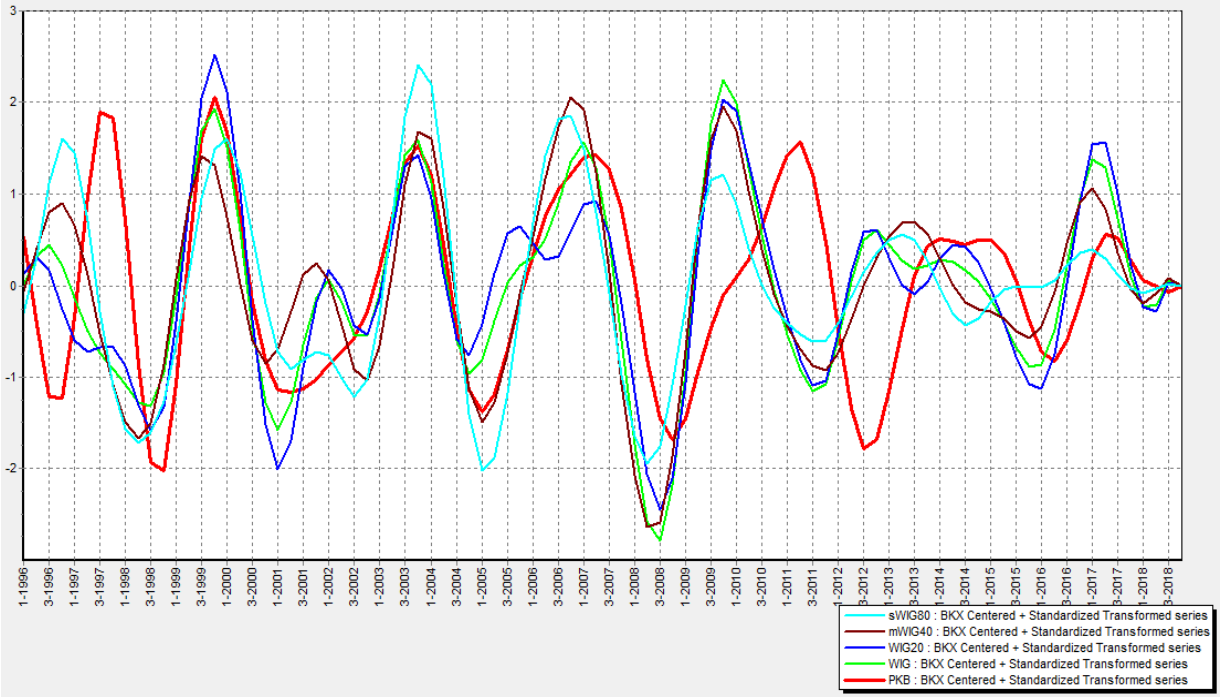
(1) The + (-) sign refers to a lead (lag) in quarters with respect to the reference series.
Source: own research.

In general, the coherence value is low and doesn't exceed 0,3 in all analysed period. This index rather low level of synchronization with the reference series. All examined indexes

[1] All necessary calculations were made in the BUSY program, recommended by EUROSTAT.

appear about 1 quarter lead in relation to GDP fluctuations. But coincident correlation ratio is low too and in case of WIG and WIG 20 indexes reaches maximum for 4 quarters lag with respect to the reference series. In turn mWIG 40 and sWIG 80 are most synchronized with GDP when leading respectively 2 and 1 quarter. A graphic method of presenting mutual correlations between variables has been included in the annex of the chapter.

Graph 1. Fluctuations of major Warsaw Stock Exchange indexes in respect to the reference series (GDP)

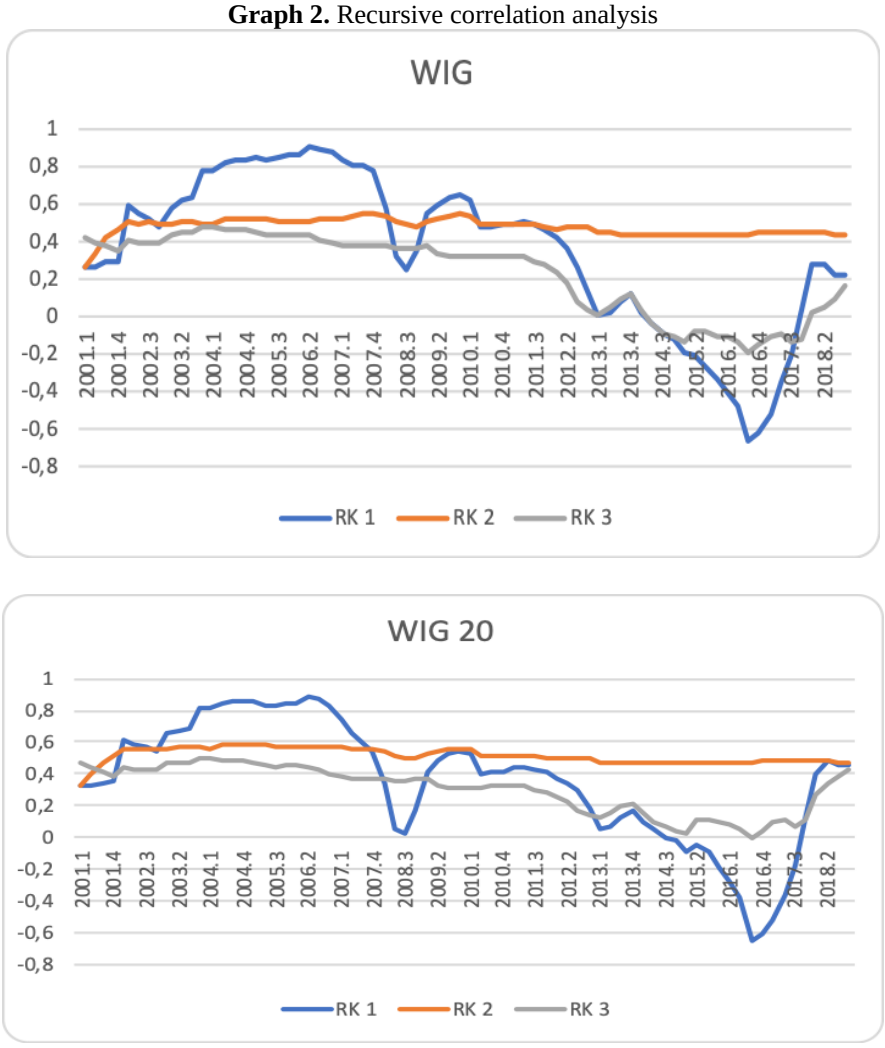


Source: own elaborations.

Analysing the dynamics of the variables studied, the differences in fluctuation range are remarkable. GDP changes did not exceed few percentage points and were not negative during the analysed period. For the contrast fluctuations range in stock market indices reached sometimes 60% and were moving both up and down in relation to the previous period. The first serious drop of the main stock market indexes was noted in 1998 i.e., during the Russian crisis. After that we had essential fall as a result of terrorist attack in the US in 2001, which lasted till 3rd quarter 2002. But the highest decline on the stock market lasted from the 3rd quarter of 2008 to the 2nd quarter of 2009. This was the consequence of last world economic and financial crisis. When analysing the highest growth on the stock market we can indicate periods directly leading the crisis, i.e., 1996-1997; 1999-2000; 2003-2007 and 2012-2014 years. Similar to the falls, the highest growths, exceeding 80% took place on the stock market, while GDP increase didn't exceed 8 percentage points in the years 1996-97.

An important issue from the point of view of the research results is the synchronization of economic fluctuations of particular stock market indexes with the GDP cycle. To verify this problem, recursive correlation coefficients were calculated for individual indexes in relation to the GDP. The results obtained are presented in graph 2 below.

Graph 2. Recursive correlation analysis



Source: own elaborations.

Regardless to the type of coefficient of covariation, in the all examined period we can mark four stages with different synchronization tendency. The first period when all measures were growing ranged from the beginning analysed period to the end of 2006 year. That was a period in Polish economy, when a positive feedback between stock market and GDP dynamics was observed. The maximum value of coefficient of covariation in that period ranged from 0,6 to 0,88 depending on the measure type. The second short period reflected a collapse in global financial and economic system and ranged from 2007 till the end of 2008 year. During that time the synchronization level between stock market and the real economy position decreased essentially. After that we could observe a one year of recovery in that aspect, but the synchronization level of all indexes and GDP didn't reach the previous maximum value, and oscillated around 0,5. From that point of time, to the end of 2016 year, a systematic decline in the coefficient of covariation value was noted. What is more, since 2013 two out of three calculated measures changed from positive to negative (RK 2 and RK 3).

That fact can be interpreted as consequence of decreasing coherence and growing phase shift among examined aggregates. Admittedly since 2016 a noticeable improvement can be noted, but till now the coefficient of covariation value reached 0,3-0,4, what indicates on poor interdependence of analysed measures.

Table 2. Turning points analysis – leads and lags with respect to the reference series (GDP)

Time series	**Trough**	**Peak**	**Trough**	**Peak**	**Trough**	**Peak**	**Trough**	**Peak**	**Trough**	**Peak**	**Trough**	**Peak**	**Number of additional cycles**
GDP	Q4 1998	Q4 1999	Q2 2001	Q4 2003	Q1 2005	Q2 2007	Q4 2008	Q2 2011	Q3 2012	Q1 2014	Q2 2016	Q2 2017	
WIG	-1	0	-1	0	-1	-1	-1	-6	-4	-5	-2	-1	1
WIG20	-1	0	-1	0	-1	0	-1	-6	-4	+1	-1	-1	0
mWIG40	-2	-1	-2	0	0	-1	-1	-6	-3	-3	-2	-1	2
sWIG80	-2	+1	0	0	0	-2	-2	-6	-4	-3	-7	-1	1

Source: own elaborations

Moving to the turning point analysis 6 peaks and 6 troughs were identified. From the beginning of the analysis there have been four important events, from the point of view of morphological analysis, which have influenced changes both in the stock market and in real economy. The first collapse was called the Russian crisis and took place in 1998 year. After that we experienced a terrorist attack in US, what triggered a world-wide short-term recession between 2001 and 2002. The third event, this time with the nature of a positive shock, was Poland's accession to the European Union. The last, but the most visible in the course of the economic activity of the country and the regions was the world economic and financial crisis between 2007 and 2011.

Described above changes in coefficient of covariation of analysed time series are confirmed by the growing divergence in turning points locations, presented in table 2. Since 2009 i.e., the year of last world economics and financial crisis trough, we can observe growing discrepancy between GDP fluctuations and stock market main indexes. The shifts among turning points from 2009 to 2016 are the largest in all examined period. This fact can indicate that so called "stylized fact" about interdependence of stock market and real economy is doubtful. It seems that apart from the real economy factors, that affect the stock market, also other factors, external to the economic system may have significant contribution to the stock market behaviour and volatility.

Table 3. Intensity of examined time series in the period from 1996 to 2018

TIME SERIES	Standard deviation (points)	Variability index (in %)	Average amplitude (in %)		
			of growth stages	of drop stages	of cycles
GDP	2.0	2.0	3.1	3.2	-0.1
WIG	29.3	25.9	77	85	-8
WIG20	29.3	27.0	72.5	70	2.5
mWIG40	36.3	31.2	84.3	97	-12.7
sWIG80	56.3	45.8	127	154	-27

Source: As in table 2

As presented in table 3, stock market indexes appear higher intensity when compared to the GDP fluctuations. That fact causes two effects. The first is at least one additional number of cycles identified in the analysed period. In all analysed indexes, except WIG20, one or more extra cycles were identified. The second effect results from the feature of the stock market. The stock market prices go up and down as a result of irregular factors, often exogenous. Sometimes political perturbations can cause noticeable fluctuations in share prices, and finally in stock market indexes. It finds the confirmation in main intensity scale measurement, like standard deviation or coefficient of variation. Stock market indexes appear

much higher value of mentioned measures. Also, the average phase amplitude, both growth and drop are several times higher than the GDP fluctuations scale.

5. Conclusions

The pace of changes in stock exchange indices in Poland is moderately related to the GDP growth rates, and changes in indices are generally leading of GDP changes by approximately one quarter in all analysed indexes. The analysis of mutual relationships done by recursive correlations initially showed a positive and high value (by the end of 2006), but in subsequent years it weakened and in the last stage from 2013, the correlation indices were negative. This confirms the results of research carried out earlier by other researchers. The analysis also showed that the main WSE indices show a low level of cyclical convergence with GDP (coherence ratio fluctuated around 0.3).

When examining the relationship between the stock market and the real economy, one must remember that many factors influence economic growth, and the stock market situation is just one of them. Analysing in turn, the stock exchange situation on a given market, it must be noted that the behaviour of stock exchange indices is a result not only of fundamental factors but also of behavioural nature. The influence of foreign and international financial markets should also be taken into account, especially in the case of stock exchanges with a relative short history or immature ones, where the level of connections is very high. The ongoing globalization causes that the behaviour of stock exchange indices on the main markets are becoming similar.

REFERENCES

[1] Adamowicz E., Dudek S., Pachucki D., Walczyk K. (2012), *Cyclical fluctuations in Poland and in the euro zone*, Economic Development Institute, Warsaw School of Economics, No. 89, Warsaw.

[2] Andrzejczak M. (2014), Econometric attempt of identification of international conditions of the stock exchange in Poland in 1996-2013, (in:) Forlicz S. (ed.), Quantitative methods, Zeszyty Naukowe Wyższa Szkoła Bankowa in Wrocław No. 7 (45), pp. 11-35.

[3] Binswanger M. (2004), How important are fundamentals? Evidence from a structural VAR model for the stock markets in the US, Japan and Europe, Journal of International Financial Markets, Institutions and Money, Volume 14, Issue 2, pp. 185-201.

[4] Borowski K. (2014), Analysis of selected seasonality effects of return rates on the copper market from January 1, 1999 to December 31, 2013, "Economics and Management", Vol. 3, pp. 106-126.

[5] Drozdowicz-Bieć M. (2009), Financial crises and business cycles, in: Garczarczyk J. (ed.), Financial services market and economic situation, I edition, CeDeW Publishing House, Warsaw, pp. 19-26.

[6] Drozdowicz-Bieć M. (2012), Business cycles and indicators, Publisher Poltext, Warsaw.

[7] Edmans A. (2009), Blockholder Trading, Market Efficiency and Mangerial Myopia, "The Journal of Finance", Vol. LXIV, No. 6, pp. 2481-2513.

[8] Fratzscher M. (1998), Why Are Currency Crisis Contagious? A Comaprision of the Latin American Crisis of 1994-1995 and the Asian Crisis of 1997-1998, Weltwirtschaftliches Archiv, Vol. 134, Issue 4, pp. 664-691.

[9] Fundowicz J. (2003), Stock market situation and macroeconomic conditions, (in:) Piech K., Pangsy-Kania S. (ed.), Diagnosis of the economic situation in Poland, Publishing House Elipsa, Warsaw, pp. 141-154.

[10] Gajdka J., Brzeszczyński J., Schabek T. (2009), The situation on the stock exchange and changes in the real sphere of the economy in Poland, "Przegląd Organizacji", no. 7-8, www.oizet.p.lodz.pl/kncashflow/images/mat/Gajdka_Jerzy.pdf (accessed on 26/01/2019).

[11] Gajdka J., Pietraszewski P. (2014), Economic growth and stock prices, "Zeszyty Naukowe Uniwersytetu Szczecińskiego", no. 804, Finances, financial markets, insurance, No. 67, Szczecin.
[12] Grudkowska S., Paśnicka E. (2007), X-12 – ARIMA and TRAMO/SEATS – empirical Polish National Bank, Department of Public Relations, Warsaw.
[13] Huerta de Soto J. (2009), Money, bank loan and business cycles, Ludwig von Mises Institute, Warsaw.
[14] Jakimowicz A. (2003), From Keynes to chaos theory, PWN Scientific Publishers, Warsaw.
[15] Keynes J. M. (2003), General theory of employment, interest and money, Third Edition, PWN Scientific Publisher, Warsaw.
[16] Lubiński M., Kąsek L. (2006), Economic fluctuations and financial perturbations, in: Barczyk R., Kąsek L., Lubiński M., Marczewski K., New faces of the business cycle, PWE, Warsaw, pp. 13-98.
[17] Mishkin F. S. (2002), Economics of Money, Banking and Financial Markets, PWN Scientific Publishers, Warsaw.
[18] Sawhney B., Feridun M., Anoruo E. (2005), Long-Run Relationship between Economic Growth and Stock Returns: An Empirical Investigation on Canada and the United States, Ekonomický Časopis 54/06, pp. 584-596.
[19] Warżała R. (2016), Business cycles in Polish regions. Theoretical and empirical study, Wydawnictwo UWM in Olsztyn, p. 324.
[20] Widz E. (2016), Fluctuations of stock indices and economic fluctuations in Poland, Acta Universitatis Lodziensis Folia Oeconomica 4 (323), 2016 http://dx.doi.org/10.18778/0208-6018.323.11, pp. 155-168.
[21] Wyżnikiewicz B. (2007), Relations between the stock exchange situation and the macroeconomic conditions in Poland, Wall Street Conference, www.sii.org.pl/static/img/_186103547.pdf

The Level of Poznań Technical Infrastructure Development at the Background of Larger Cities in Wielkopolskie Voivodship

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1. Introduction

Wielkopolskie voivodship is located in the central-western part of Poland; it covers the area of 29,826 km^2 and is inhabited by 3.472 million people. It is situated along one of the most important economic exchange routes between Eastern and Western Europe. This location is associated with a location rent and generates numerous opportunities for development. The settlement network of the voivodship creates a hierarchical, evenly developed settlement system [1].

Poznań is the city with county rights, located in western Poland in Wielkopolska Lake District, on the River Warta, at the mouth of the River Cybina. It is the seat of Poznań county and, since 1999, also the seat of Wielkopolskie voivodship government. It is divided into five districts: Jeżyce, Grunwald, Nowe Miasto, Stare Miasto, Wilda. Poznań is ranked as the eighth in terms of its area (261.9 km^2) and the fifth in terms of its population number (540.4 thousand) among the largest Polish cities. It forms Poznań agglomeration along with its neighbouring towns and villages. According to J. Parysek [2] it is inhabited by over 800,000 people and includes: Luboń, Swarzędz, Mosina, Puszczykowo and other nearby locations.

The city of Poznań represents an important road, rail and air transport hub as well as the large academic, scientific and cultural centre, not only for Wielkopolska region but also for the entire country [3].

Kalisz is located in Wysoczyzna Kaliska *[Kaliska Upland]*, in the central-western part of Poland, in the valley of the River Prosna. It is the second largest city in Wielkopolskie voivodship, covering the area of 69.4 km^2 with the population of 102.3 thousand residents.

Together with Ostrów Wielkopolski and the other nearby locations, it forms the Kalisko-Ostrowska agglomeration [4] and is the centre of Kalisko-Ostrowski Industrial District. It is a significant industrial centre in the area of south Wielkopolska.

Konin is the city with county rights, located in the eastern part of Wielkopolskie voivodship on the River Warta. It is the seat of Konin county as well as the main centre of the Konin Brown Coal Basin. It has 75.3 thousand residents and covers the area of 82.2 km^2.

The next city with county rights included in the study is Leszno, which occupies the south-western part of Wielkopolskie voivodship. Leszno is also the seat of Leszczyński county consisting of seven neighbouring municipalities. The city covers the area of 31.9 km^2 and is inhabited by approximately 64.2 thousand residents. Until 1999, Leszno, similarly to Kalisz and Konin, was the capital of one of 49 voivodships, which, beyond any doubt, had a positive impact on the development processes taking place in these cities.

The purpose of the chapter is to identify and assess the development level of Poznan's technical infrastructure at the background of the aforementioned cities of Wielkopolskie voivodship. The selection of these units was determined by their status of cities with county

rights and former voivodship centres. It is to verify the hypothesis that the level and intensity of infrastructure development in the region's capital is the highest.

The study was carried out using the taxonomical method of a non-model measure for 2005 and for 2015. It is interesting whether after Poland's accession to the European Union and the absorption of EU funds, the convergence or divergence in the level of infrastructure development was observed in the analysed cities.

2. The Concept of Technical Infrastructure – Selected Aspects

In the subject literature, infrastructure often appears as a term defining the set of devices, institutions and objects necessary for the proper functioning of the economy and society [5].

The definitions indicate the main tasks of infrastructure, which include supporting production activities, meeting the needs related to the functioning of society, strengthening defence, impact on the conditions of natural environment protection [6]. The authors adapt the scope of the concept to the discussed problems, emphasizing the aspects which allow combining the essence of infrastructure in a more transparent way with the context of the presented considerations. The differences in approaching the concept of infrastructure refer to the material or non-material nature of the phenomenon and extending this issue by the impact of human capital [cf. 7]. The analysis of various definitions of infrastructure and their material scope allows noticing the main division of infrastructure into social infrastructure and technical infrastructure, the latter being the subject of interest in this study.

Technical infrastructure, also referred to as economic or technical-economic infrastructure, is established by the equipment and networks in the area of transport and communication, energy, water and sewage management and also waste management, covering, e.g.:

- roads, railways, ports;
- electricity grid, gas, water and sanitary as well as drainage network;
- postal and telecommunications facilities [6].

The subject literature also includes radio and television stations, as well as the Internet, in technical infrastructure [8]. Residential construction, commercial facilities and equipment, which is more debatable, are also included in it [8, 9, 10]. These examples show that the concept of technical infrastructure strongly corresponds with the remaining types of infrastructure.

Technical infrastructure "facilitates the movement of people and the flow of energy, information, capital, goods and services which meet basic human needs" [11]. Its objects can have either a point or a linear character, depending on the function performed [12]. The linear form refers to, e.g., gas pipelines or water supply networks, whereas the point type form is represented by, e.g., car parks, bus stops or railway stations.

3. Research Method

The level of technical infrastructure development in cities was analysed using a non-model synthetic measure hi. In non-model methods, the synthetic measure is determined based on the function of baseline characteristics. The most frequently used function is the arithmetic mean, but also other means, e.g. the harmonic mean. In order to be able to aggregate variable values which describe complex phenomena, first they should be unified in terms of their impact on the level of the presented phenomenon. The most common procedure carried out for this purpose is to convert destimulants into the form of stimulants. Such conversion can be performed using the following formula (1):

$$X_{ij} = max\, X_{ij} - X_{ij} \tag{1}$$

where X_{ij} is the value of *i* object for *j* feature.

The next step in determining the synthetic measure using the non-model method is conducting the normalization transformation in order to make the variables comparable. This procedure aims at the unification of orders of magnitudes and units of the variables. Among the normalization transformations the following are listed: standardization, unitarization and normalization. In the presented study the unitarization method was applied. The normalization formula used in the study takes the form of formula (2):

$$Z_{ij} = \frac{X_{ij}}{maxX_{ij}} (i = 1, \dots, n \quad j = 1, \dots, p) \tag{2}$$

where:

X_{ij} – value of *i* object for *j* feature,

Z_{ij} – normalized value of *i* object for *j* feature.

The last stage consists in the construction of a synthetic measure. For this purpose, a non-model measure is determined as the mean of normalized features. In the study the arithmetic mean was used. Therefore, the formula to determine the non-model synthetic measure takes the following form (3):

$$h_i = \frac{1}{p}\sum_{j=1}^{p} Z_{ij} \quad (i - 1, \dots, n) \tag{3}$$

where:

h_i – value of non-model synthetic measure of i object,

Z_{ij} – normalized value of *i* object for *j* feature,

p – number of features.

The application of synthetic indicator measures allows effective characteristics of the socio-economic changes occurring in the analysed area [14]. Thus, the approach to the analysed problem is becoming more holistic. Such tools are helpful in the planning process, representing one of the basic management instruments [15], as they facilitate drawing conclusions based on the ongoing spatial processes [16].

4. Research Results

For the purposes of the study the following statistical material was collected – time and spatial series for the group of 15 features characterizing the technical infrastructure of Poznań, Kalisz, Konin and Leszno (Table 1). Even though they are not all the features which can be taken into account during this type of study, they do show a certain picture of the infrastructure development level. The elements of technical infrastructure in the analysed cities are divided into the following categories: gas and heat engineering; water supply and sewage system; communication, greenery and waste management. At this stage of the study, the arithmetic mean, standard deviation *Sj* and the coefficient of variation *Vj* were calculated for each of the analysed features. Since the value of the coefficient of variation of the discussed features was above the assumed level ($Vj \leq 0,05$), there was no need to eliminate the quasi-permanent variables from the next steps of the study.

Tab. 1. The set of diagnostic features

Components of technical infrastructure	No.	Feature
Gas and heat engineering	1	Length of gas distribution network in km per 100 km^2 area
	2	Total open gas connections to buildings (residential and non-residential) per 100 inhabitants
	3	Length of heat transmission network in km per 1 km^2 area
	4	Percentage of apartments with central heating installations

Components of technical infrastructure	No.	Feature
Water supply and sewage system	5	Length of water distribution network in km per 100 km^2 area
	6	Water supply connections to residential buildings and collective housing per 100 residents
	7	Length of sewerage distribution network in km per 100 km^2 area
	8	Sewage connections to residential buildings and collective housing per 100 residents
	9	Length of sewerage network against the length of water supply network
Communication, greenery and waste management	10	Length of municipal and county hard surface roads in km per 100 km^2
	11	Area of parks, green spaces and residential estate greenery in ha per 100 residents
	12	Length of bike paths in km per 1 km^2
	13	The amount of industrial sewage discharged into sewerage network in m^3 per 100 km^2 area
	14	Population using sewage treatment plants as % of total population
	15	Residential buildings covered by the collection of household waste per 100 inhabitants

Source: author's compilation based on the Statistics Poland data

Table 2 presents the list of features for the analysed cities in the years 2005 and 2015:

Tab. 2. The set of values of the diagnostic features covered by the study

No.	Kalisz		Konin		Leszno		Poznań	
	2005	2015	2005	2015	2005	2015	2005	2015
1	253.7	286.70	156.20	183.80	571.60	650.70	453.90	490.80
2	4.41	5.13	2.22	3.17	10.29	11.78	6.35	7.56
3	0.61	0.75	1.54	1.35	0.68	0,76	1.15	1.36
4	76.73	79.15	93.27	94.12	83.88	86.23	84.50	87.35
5	325.6	358.10	214.70	230.30	468.70	474.90	331.60	447.60
6	3.78	6.38	2.71	5.22	7.44	10.57	3.11	6.78
7	191.3	331.00	196.70	221.40	497.20	628.10	274.90	363.40
8	6.84	8.48	5.62	7.25	8.92	12.27	3.81	7.84
9	0.59	0.92	0.92	0.96	1.06	1.32	0.83	0.81
1	197.6	294.15	131.24	185.64	255.49	434.40	292.31	316.90
1	0.13	0.15	0.19	0.26	0.17	0.12	0.21	0.18
1	0.35	0.55	0.24	0.41	0.94	1.37	0.40	0.52
1	0.00	66.30	125.67	109.33	91.99	104.18	14.85	83.25
1	66.13	93.20	81.08	98.50	99.71	96.10	94.47	94.30
1	6.80	8.11	6.01	7.40	8.95	10.08	6.69	7.55

Source: author's compilation based on the Statistics Poland data

As a result of the conducted research procedure, characterized in point 3 of the study, the results shown in Fig. 1 and also in Tab. 3 were obtained.

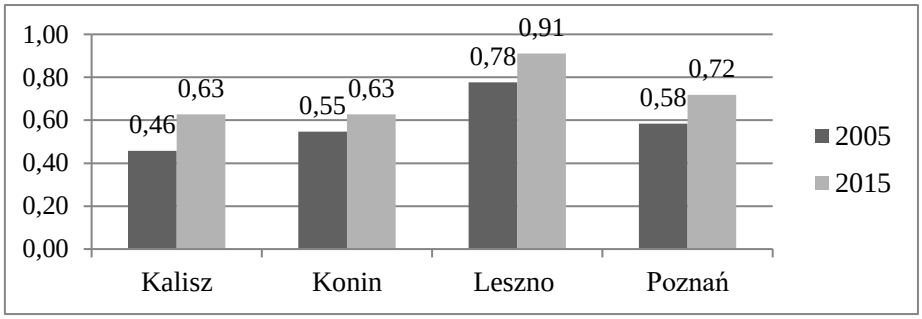

Fig. 1. The synthetic measure value in the analysed cities in the years 2005 and 2015
Source: author's compilation

The percentage increase in the value of the non-model synthetic measure between 2005 and 2015 in the analysed cities was: for Kalisz 37%, Konin 14.5%, Leszno 16.7%, Poznań 24.1%.

Tab. 3. The dynamics of changes in measure value in townships in relation to Poznań in the years 2005 and 2015 (%)

Year	Kalisz	Konin	Leszno	Poznań
2005	79.3	94.8	134.5	100
2015	87.5	87.5	126.4	100

Source: author's compilation

It is worth observing that the level of technical infrastructure development measured using the synthetic indicator did improve in all analysed cities. The value of a non-model synthetic measure for Poznań in 2005 was 0.58, whereas in 2015-0.72. Therefore, the synthetic indicator for 2015, against the respective value for 2005, increased by 24.1%. Thus, we can speak about a significant improvement in the level of infrastructure development measured in this way. At the same time, Leszno, both in 2005 and in 2015, definitely dominated the other analysed cities, including Poznań. Within the period of 10 years Kalisz and Poznań were catching up in terms of their distance to the leader, whereas Konin was characterised by the lowest growth dynamics. It should be emphasized that Kalisz, characterized by the lowest synthetic measure value in 2005, achieved the highest dynamics of its growth and in 2015 was ranked at the same position as Konin in relation to the leader of the ranking.

5. Conclusions

An important barrier inhibiting infrastructure investments results from the lack of sufficient funds for their implementation. Along with the accession to the European Union, the chance to acquire them increased owing to, e.g., the European Regional Development Fund. In 2005 the changes in the development of infrastructure were still not noticeable enough, however, that year is a reliable benchmark regarding the level of infrastructure recorded more than a decade after signing the Accession Treaty. The research carried out in the study showed the significant development of technical infrastructure in all analysed cities over the period 2005-2015. High economic indicators for Wielkopolskie voivodship, which achieved the third national result in terms of GDP per capita, are also meaningful in this case.

The research results show that Kalisz is the city where the value of synthetic measure, measuring the level of technical infrastructure development, increased the most, i.e., by as much as 37%. Thus, it can be concluded that such sources of funding are addressed to the units requiring support, as in 2005 Kalisz was characterized by the lowest measure value.

The research procedure also showed that Poznań, being the voivodship capital, achieved lower result than Leszno – the smallest of the cities covered by the study. Hence, the research

hypothesis was verified negatively. The location of Leszno between two large agglomerations: Poznań and Wrocław is an asset when choosing the destination for new investments. The construction of S5 expressway is currently underway, the completion of which may bring further benefits for Leszno in the form of economic and infrastructural development. In the conducted analysis Konin presents itself unfavourably against the background of other townships in the Wielkopolskie voivodship. The conducted research has shown that it is characterized not only by the low level of technical infrastructure, but also by its low growth rate. It can be concluded that the factor significantly affecting the scale of the occurring development processes is not only the availability, but also taking proper advantage of the emerging opportunities, including the ones in the form of EU funds. Both the commitment and skills of local authorities represent important factors having impact on the processes occurring in cities.

REFERENCES

[1] Zarząd Województwa Wielkopolskiego (2012). Wielkopolska 2020, Zaktualizowana Strategia Rozwoju Województwa Wielkopolskiego do 2020 roku, Poznań.

[2] Parysek, J. (2008). Aglomeracje miejskie w Polsce oraz problemy ich funkcjonowania i rozwoju, [in:] Wybrane problemy rozwoju i rewitalizacji miast: aspekty poznawcze i praktyczne. Rozwój Regionalny i Polityka Regionalna 5, Bogucki Wydawnictwo Naukowe, Poznań.

[3] Miejski Informator Multimedialny (2017). Bilans 1990-2010. Urząd Miasta Poznania, Poznań, http://www.poznan.pl/mim/main/4-podstawowe-uwarunkowania-dla-emisji-gazow-cieplarnianych-w-poznaniu,p,23488,23498.html (dostęp 04.05.2017).

[4] Dolata, J., Maik, W. (1979), Układ osadniczy, [in:] Zajchowska, S. (ed.), Województwo kaliskie, Wydawnictwo Poznańskie, Poznań.

[5] Mirowski, W. (1996). Wyposażenie obszarów wiejskich w infrastrukturę społeczną. IRWiR PAN, Warszawa.

[6] Borcz, Z. (2000). Infrastruktura terenów wiejskich. Wydawnictwo Akademii Rolniczej we Wrocławiu, Wrocław.

[7] Raszkowski, A. (2015). The strategy of local development as the component of creative human capital development process. Research Papers of Wrocław University of Economics 394, Publishing House of Wrocław University of Economics, Wrocław, pp. 135-143.

[8] Kapusta, F. (2012). Poziom infrastruktury technicznej i społecznej jako indykator i symulator rozwoju regionalnego. Nierówności Społeczne a Wzrost Gospodarczy 29, pp. 315-325.

[9] Sochacka-Krysiak, H. (2006). Zarządzanie gospodarką i finansami gminy. Oficyna wydawnicza SGH, Warszawa.

[10] Twardzik, M. (2009). Centra handlowe jako czynnik kreatywności miast w województwie śląskim, [in:] Klasik, A. (ed.), Kreatywne miasta i aglomeracje. Studia przypadków, Wydawnictwo Akademii Ekonomicznej w Katowicach, Katowice, pp. 395-401.

[11] Myna, A. (2012). Modele rozwoju lokalnej infrastruktury technicznej). Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin.

[12] Kudłacz, T. (2015). Rodzaje i cechy infrastruktury oraz jej funkcje w rozwoju regionalnym i lokalnym – zarys problemu [in:] Hołuj, A., Kudłacz, T. (eds.), Infrastruktura w rozwoju regionalnym i lokalnym, Wydawnictwo CeDeWu.

[13] Świąder, M., Szewrański, S., Kazak, J. (2016). The local development index as a tool for the evaluation of socio-spatial inequities. Hradec Economic Days 2016 (3), University of Hradec Kralove, Hradec Kralove, pp. 197-208.

[14] Hełdak, M., Raszka, B. (2013). Evaluation of the spatial policy of a commune with regard to planned land use. Polish Journal of Environmental Studies 22(1), pp. 125-130.

[15] Kazak, J., Pilawka, T. (2013). Convergence of the socio-economic development level of rural and semi-urban communes in Lower Silesia. Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu XV (4), pp. 202-207.

Modelling Tourist Intention to Return to a Foreign Destination in the Case of Two Generation Y Layers from Romania

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1. Introduction

Intention to return to a particular destination can be determined through the use of methods centred on destination, by assessing attribute performance [1], and/or tourist, by probing into market segments or tourist profiles [2], [3], travel recency and frequency [4] or motivation to travel [5]. The extant tourism literature prompts complex intention assessment models based on various determinants [6], such as satisfaction, experience quality and perceived quality [7].

Developing on such perspectives, intention to return in this study is determined in two ways, the first being based on the overall holiday experience and the second one based on motivational factors for returning, offering, thus, two different perspectives. Holiday experience is a measure of satisfaction. Spreng *et al*., [8], Kozak [9] and Assaker *et al*., [10] emphasise that holiday experiences are the most important determinants of satisfaction, while satisfaction is a highly important influencer when it comes to the returning intention [11].

Motivation is widely covered in the tourism literature, the push-pull (motivation) dichotomy [12] being a suitable starting point for comprehending reasons to travel. The push motivational variables or internal motivational factors pertain to tourists while the pull variables or the external motivational factors are generated by destinations [13]. The tourism literature provides considerable evidence on internal and external tourism motivation, a selection of studies from which the present research selected variables as independent factors includes the works of Crompton [13], Tang and Rochananond [14], Uysal and Hagan [15], Kim [16], Kozak [17], Huang and Tsai [18], Huang and Petrick [19], Li *et al*., [20], Pratminingsih *et al*., [21] or Shenna [22]. Based on a thorough review of the tourism literature on motivation, a list with 30 push (internal) and pull (external) motivational variables was drafted and displayed in table 1 together with the sources to be further used in building the conceptual model of the present research. Most tourism studies focus on comparisons between Generation Y and other generational groups [20], [19] with just a few investigating only Generation Y [23], [24], and almost non probing inside Generation Y.

Considering Generation Y's heterogeneity [25], [26] and the lack of evidence on tourism behaviour of different age layers of Generation Y, the purpose of this research is to provide insights about the determinants of the intention to return to a destination, as they appear within Generation Y, by proposing a model to be tested in Romania.

2. Research Purpose, Model Presentation and Hypotheses

This chapter investigates two age layers within Generation Y from Romania, 20 and 24 years old and 25 and 29 years old, pursuing to explain, based on the overall holiday experience had in a foreign destination and motivation to travel, the intention to return to the respective foreign destination. The holiday experience had in a foreign destination was

approached globally using one categorical scale (satisfied versus dissatisfied), tourist motivation was assessed through semantic differentials with 5 levels (very important to not at all important) [7], while the intention to return was appraised based on a categorical scale (yes versus no).

The conceptual model was enriched by including demographic variables to be employed as explaining factors, namely age, gender, education, marital status and source of funding the trip. Demographic variables have been used as independent variables in previous tourism studies, age being posited as a factor in choosing destination attributes [27], education as a variable influencing the decision to travel [28], while age, gender and education are considered suitable predictors of the duration of stay [29]. The remaining two demographic (marital status and source of funding the trip) variables were envisaged to give weight to the model.

Considering the abovementioned facts, eight hypotheses were formulated to be tested:

H1 There is a direct relationship between the intention to return to the foreign destination and the external (pull) motivation,

H2 There is a direct relationship between the intention to return to the foreign destination and the internal (push) motivation,

H3 Men are more likely to return to the foreign destination than women,

H4 The 20-24-year old individuals are more likely to return to the foreign destination than the ones aged between 25 and 29,

H5 The individuals funding the trip with their own sources are more likely to return to the foreign destination than the ones funding with other sources,

H6 The married individuals are more likely to return to the destination than the unmarried ones,

H7 The individuals with a high school level and below are less likely to return to the destination than the ones with a post high school level,

H8 There is a direct relationship between the intention to return to the foreign destination and the overall holiday experience.

3. Research Methodology

The research methodology used in this chapter entailed two steps, a qualitative one and a subsequent quantitative one. The qualitative methodology was used to tailor the independent variables drawn from the tourism literature to the peculiarities of the two age Generation Y groups from Romania, by employing 30 semi-structured in-depth interviews [9] with Generation Y individuals asking them to choose from the 30 motivational variables compiled from literature and presented in table 1 the variables that were important when considering to return to a destination allowing, also, the respondents to express their thoughts about the presented variables and to mention new ones [30]. Continuing with the quantitative research, semantic differential scales with 5 levels were employed to assess motivation and categorical scales to appraise the holiday experience, intention to return and demographic variables. For ease of measuring, the respondents were asked to refer only to their last tourist experience in a foreign country. The data were analysed using logistic regression. As zero frequencies were encountered in at least one category of some independent variables, these variables were transformed into categorical variables by combining the negative and neutral levels of the semantic differential scales into one category named *not important* and the positive levels into one category named *important* [31]. In the qualitative study, a sample of 30 individuals was used based on a quota sampling procedure, resembling the population structure in Romania for age (using two groups: 20-24 years old and 25-29 years old) and gender [32]. Thus, the sample included 8 men between 20 and 24 years old, 7 women between 20 and 24 years old

and 8 men between 25 and 29 years old and 7 women between 25 and 29 years old. To be included in the sample, each individual should have travelled abroad at least once in the past 5 years. In the quantitative study, a sample of 800 individuals was used based on a random multiple-layer sampling procedure using age (two groups: 20-24 years old and 25-29 years old) and gender as sampling criteria. Again, to be included in the sample, the individual should have travelled abroad at least once in the past five years. Thus, 210 males between 20 and 24 years old and 202 between 25 and 29 years old were considered and 196 females between 20 and 24 years old and 192 between 25 and 29 years old were included in the sample. The data collection was performed in two shopping malls in Bucharest by employing a systematic sampling procedure was used (every other 10^{th} individual being stopped for completing the questionnaire).

4. Results and Discussions

The qualitative study performed based on in-depth interviews rendered 20 motivational variables (table 1) to be used in the questionnaire to collect quantitative data.

Table 1. Motivational factors used in the research

Motivational factor-collected from the literature and own qualitative research	**Source-selected or adapted from**	**Retained/added for quantitative research**
Encounter new life experiences	[13]	YES
Escaping from a perceived mundane environment; Relaxation; Social interaction	[13]	NO
Stimulation; Fulfilment; Self-esteem	[16]	NO
Health and fitness; Adventure; Scenery; Recreational opportunities; Being able to spend more time with friends and family; Getting away from city life; Engaging with other cultures and people	[15]	NO
Having fun/entertainment; Accessibility of the destination; Quality of food offerings; Personal safety; Appropriate accommodation; Efficient public transport to get around the destination; Shopping	[20]	YES
Having religious experiences	[21]	YES
Emotional identification; Variety of attractions; Value for money/affordability; Marketing of the destination	[22]	NO
Proximity of the destination	[18]	YES
Well-developed superstructure (airports, attractions, hotels)	[14]	YES

Table 1. Motivational factors used in the research (continuation)

Motivational factor-collected from the literature and own qualitative research	**Source-selected or adapted from**	**Retained/added for quantitative research**
Good weather conditions	[19]	YES
Friendly service	[20]	NO
Improve my knowledge about the foreign country	Added from own qualitative study	
Visit unseen places		
Meet up with other travellers with similar interests		

Source: as mentioned in the table and own research

In the quantitative study the data were analysed using logistic regression, its assumptions being checked and briefly presented in a table for the entire model. Regarding the intention to return to the foreign destination part, the model was statistically significant, Chi-square = 154.701, $p<0.001$, explaining 23.5% (Nagelkerke R Square) of the variance in the Intention to return and correctly classifying 70.0% of the cases. Based on forward, backward and enter

logistic regression and a non-significant value of the Hosmer-Lemeshow test of goodness of fit, from the initially proposed 20 motivational variables and 5 demographic ones, the most comprehensive model was retained (see table 2), including 7 motivational variables (Q9.3_cat-Encounter new life experiences, Q9.4_cat-Have fun/entertainment, Q9.15-Be able to spend more time with friends and family, Q9.20_cat-Value for money, Q9.1-Improve my knowledge about the foreign country, Q9.10-Good weather conditions and Q9.11-Quality of food offerings) and one demographic variable Q20-(Gender). The independent variables with no answers in at least one level of the semantic differential scale were transformed in categorical variables with two levels: 1-important- comprising the important and very important levels and 2-Not important- comprising the unimportant, not important at all and neutral levels). All these variables were statistically significant considering the sig values (less than 0.05) of the Wald test. Also, the non-significant value of the Hosmer-Lemeshow test (p=0,127) showed an adequate level of data fitting.

Table 2. Logistic regression- Intention to return to the foreign destination- Romania

Variables in the Equation								
Variable-detailed in text	**B**	**S.E.**	**Wald**	**Df**	**Sig.**	**Exp(B)**	**95% C.I. for EXP(B)**	
							Lower	Upper
Q9.3_cat	-.890	.262	11.594	1	.001	.410	.246	.685
Q9.4_cat	2.312	.260	79.353	1	.000	10.095	6.070	16.789
Q9.15_cat	.455	.190	5.717	1	.017	1.576	1.085	2.288
Q9.20_cat	.759	.233	10.630	1	.001	2.137	1.354	3.373
Q9.1	.474	.098	23.402	1	.000	1.606	1.325	1.946
Q9.10	-.533	.121	19.382	1	.000	.587	.463	.744
Q9.11	.274	.100	7.423	1	.006	1.315	1.080	1.601
Q20	-.418	.176	5.671	1	.017	.658	.466	.929
Constant	-2.402	.558	18.540	1	.000	.091		

Source: own research

After running the assumptions' tests stipulated by Stoltzfus (2011) [33] (i.e., the final model included 3 motivational variables, Q9.4_cat (Have fun/entertainment), Q9.20_cat (Value for money) and Q9.11 (Quality of food offerings) and 1 demographic variable, Q20 (Gender). Have fun/entertainment, with an odds ratio of 10.095, displays that an individual valuing entertainment is 10.095 times more likely to return to the destination. Value for money, with an odds ratio of 2.137, shows that an individual considering important the expenses incurred by travelling is 2.137 times more inclined to return to the destination.

Quality of food offerings, with an odds ratio of 1.315, shows that an increase of one unit on the 5-level semantic differential scale increases the odds of returning to the destination by a multiplicative factor of 1.315. Gender, with an odds ratio of 0.658, shows that women are 1.519 times more likely to return to the destination than men. Based on the findings, hypothesis H1 was partially retained as two variables (Quality of food offerings and Value for money) displayed a direct relationship with the dependent variable, while one variable (Good weather conditions) was removed from the model for not meeting the assumptions and the rest of the 7 pull variables (Accessibility of the destination, Proximity of the destination, Well-developed superstructure (airports, attractions, hotels), Personal safety, Appropriate accommodation, Variety of attractions, Efficient public transport to get around the destination) were not included in the model and, thus, inferring no relationship with the dependent variable. Hypothesis H2 was partially retained as one variable (Have fun/entertainment) displayed a direct relationship with the dependent variable, while Improve my knowledge about the foreign country and Encounter new life experiences were removed from the model for not meeting the assumptions and the rest of the 7 push variables (Visit

unseen places, Have religious experiences, Meet up with other travellers with similar interests, Be able to spend more time with friends and family, Shopping, To get away from the city life, Engage with other cultures and people) were not included in the model and, thus, inferring no relationship with the dependent variable. Hypothesis H3 was rejected as women were more likely to return to the destination than men and hypotheses H4, H5, H16, H7 were rejected as the respective variables were not included in the model and, thus, inferring no relationship with the dependent variable.

Referring to the overall holiday experience-intention to return to the foreign destination part, the model was statistically significant, Chi-square = 62,530, $p<0.001$, explaining 10.1% (Nagelkerke R Square) of the variance in the Intention to return and correctly classifying 65% of the cases. Having only one predictor, the Wald test was used for the goodness of fit of the model ($p<0.001$) and the statistical significance of the predictor. Based on the finding and by meeting the logistic regression assumptions [33], an increase of one unit on the 5-level semantic differential scale measuring the overall holiday experience increases the odds of returning to the destination by a multiplicative factor of 3.474, leading to the retaining of hypothesis H8, as there is a direct relationship between the two variables.

5. Conclusions

In conclusion, the Romanian Generation Y members between 20 and 29 years old tend to return to the foreign tourism destination for motives pertaining to entertainment and food but placed in a rational context as they mentioned value for money as a reason for returning. An interesting finding is that women are more likely to return to the foreign destination than men.

Overall considered, a satisfying holiday experience is more likely to lead to the return to the foreign destination according to the findings. Regarding the importance of entertainment, value for money and food in choosing a destination, these findings expand on the results of Li *et al*., [20] as they underlined these motives as being important in a generational comparative study. In a broader picture, the findings pertaining to the importance of value for money as a travelling motivator, are on the same length with the conclusions emphasised by Shenna [22].

This study enriches the literature by pointing out the significance of gender in explaining return intention within Generation Y, thus developing the conclusions described by Machado [29]. Based on the findings, managers at destinations can tailor their offers in such a way as to accommodate the motives underlying the return to destination. Also, the model proposed in this chapter can be applied as tested or tailored to distinct tourism destinations or tourist groups.

The focus on just one nationality can be considered a research limitation, thus, future studies could aim to compare between different nationalities, while applications of this model to distinct destinations could loom as another future research direction.

REFERENCES

[1] Baker, D.A., Crompton, J.L., (2000). Quality, satisfaction and behavioural intentions. Annals of tourism research 27(3), pp. 785-804.

[2] Oppermann, M. (2000). Tourism destination loyalty. Journal of travel research, 39(1), pp. 78-84.

[3] Jang, S., Feng, R. (2007). Temporal destination revisit intention: The effects of novelty seeking and Satisfaction. Tourism Management, 28, pp. 580-590.

[4] Hughes, A.M. (1995). Making a database pay off using recency, frequency, and monetary analysis. Journal of Database Marketing, 3(1), pp. 77-89.

[5] Yoon, Y., Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: a structural model. Tourism management, 26(1), pp. 45-56.

[6] Chen, C.F., Tsai, D. (2007). How destination image and evaluative factors affect behavioural intentions? Tourism management, 28(4), pp. 1115-1122.
[7] Chen, C-F., Chen, F-S. (2010). Experience quality, perceived value, satisfaction and behavioural intentions for heritage tourists. Tourism Management, 31, pp. 29-35.
[8] Spreng, R.A., MacKenzie, S.B., Olshavsky, R.W. (1996), A re-examination of the determinants of consumer satisfaction. The Journal of Marketing, pp. 15-32.
[9] Kozak, M. (2001). Repeaters' behaviour at two distinct destinations. Annals of Tourism Research, 28(3), pp. 784-807.
[10] Assaker, G., Vinzi, V.E., O'Connor, P. (2011). Examining the effect of novelty seeking, satisfaction, and destination image on tourists' return pattern: A two factor, non-linear latent growth model. Tourism Management, 32, pp. 890-901.
[11] Valle, P.O.D., Silva, J.A., Mendes, J., Guerreiro, M. (2006). Tourist satisfaction and destination loyalty intention: a structural and categorical analysis. International Journal of Business Science and Applied Management, 1(1), pp. 25-44.
[12] Dann, G. (1977). Anomie, ego-enhancement and tourism. Annals of Tourism Research, 4(4), pp. 184-194.
[13] Crompton, J.L. (1979). Motivation for Pleasure Vacation. Annals of Tourism Research, 1(1), pp. 408-425.
[14] Tang, C.S., Rochananond (1990) Attractiveness as a tourist destination: A comparative study of Thailand and selected countries. Socio-Economic Planning Sciences, 24(3), pp. 229-236.
[15] Uysal, M., Hagan, L.A.R. (1993). Motivation of pleasure travel and tourism, in Khan, M., Olsen, M., Var, T. (Eds.). VNR's Encyclopaedia of Hospitality and Tourism, Van Nostrand Reinhold, New York, pp. 798-810.
[16] Kim, E. (1997) Korean outbound tourism: Pre-visit expectations of Australia. Journal of Travel and Tourism Marketing, 6(11), pp. 11-19.
[17] Kozak, M. (2002). Comparative analysis of tourist motivations by nationality and destinations. Tourism Management, 23(3), pp. 221-232.
[18] Huang, L., Tsai, H.T. (2003). The study of senior traveller behaviour in Taiwan. Tourism Management, 24(5), pp. 561-574.
[19] Huang, Y.C., Petrick, J.F. (2010). Generation Y's Travel Behaviours: a comparison with Baby Boomers and Generation X, in: Benckendorff P., Moscardo G., Pendergast D. (eds.), Tourism and Generation Y, CAB International, Wallingford, UK, pp. 27-37.
[20] Li, X., Li, X.R., Hudson, S. (2013). The application of generational theory to tourism consumer behaviour: An American perspective. Tourism Management, 37, pp. 147-164.
[21] Pratminingsih, S.A., Rudatin, C.A., Rimanta, T. (2014). Roles of Motivation and Destination Image in Predicting Tourist Revisit Intention: A case of Bandung- Indonesia. International Journal of Innovation, Management and Technology, 5(1), pp. 19-24.
[22] Shenna, M. (2014). Tourist Destination: Demand-Motivating Factors in Israel's Domestic Tourism. Journal of Tourism Challenges and Trends, VII (2), pp. 66-86.
[23] Nusair, K.K., Bilgihan, A., Okumus, F. (2013). The role of online social network travel websites in creating social interaction for Gen Y travellers. International journal of tourism research, 15(5), pp. 458-472.
[24] Muskat, M., Muskat, B., Zehrer, A., Johns, R. (2014). Generation Y: evaluating services experiences through mobile ethnography. Tourism Review, 68(3), pp. 55-71.
[25] Foscht, T., Schloffer, J., Maloles, C., Chia, S.L. (2009). Assessing the outcomes of Generation Y customers' loyalty. International Journal of Bank Marketing, 27(3), pp. 218-241.
[26] Paul, P. (2001). Getting Inside Gen Y. American Demographics, September 1st.
[27] Weaver, P.A., McCleary, K.W., Lapisto, L., Damonte, L.T. (1994). The relationship of destination selection attributes to psychological, behavioural and demographic variables. Journal of Hospitality & Leisure Marketing, 2(2), pp. 93-109.
[28] Zimmer, Z., Brayley, R.E., Searle, M.S. (1995). Whether to go and where to go: Identification of important influences on seniors' decisions to travel. Journal of travel research, 33(3), pp. 3-10.
[29] Machado, L.P. (2010). Does destination image influence the length of stay in a tourism destination? Tourism Economics, 16(2), pp. 443-456.

[30] Zaharia, R., Zaharia, R.M. (2017). Qualitative Research Methods: How to Ask and Whom to Ask? A Comparison between Focus Group and In-depth Interviews. In *Proceedings of the International E-Conference on Enterprises in the Global Economy*; Vancea, D.P.C., Zaharia, R.M., Eds.; Filodiritto Publisher: Bologna, Italy.
[31] Allison, P.D. (2008). Convergence Failures in Logistic Regression, Proceedings of the SAS Global Forum 2008, SAS Institute Inc., Cary, NC, Paper 360.
[32] National Institute of Statistics (2017), Romania in Figures-Stat Abstract, Available at: http://www.insse.ro/cms/ro/search/node/romania%20in%20figures; October 10, 2017.
[33] Stoltzfus, J.C. (2011). Logistic Regression: A Brief Primer. Academic Emergency Medicine, 18, pp. 1099-1104.

Some Reflections on the Trinomial: Crisis – Resilience – Marketing

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1. Introduction

Since the autumn of 2008, discussions about the economic and financial crisis, recession and their implications have become a real leitmotif, so there is no public or private environment in which they have not been spoken of. We did not intend to analyse the factors that led to the crisis in 2008, but to show how marketing can contribute to overcoming the difficult situations faced by businesses in such a context. However, in order to perceive the usefulness of marketing in crisis situations, we will first make a brief presentation of the concepts of crisis and resilience.

2. The Concept of Crisis

From an etymological point of view, the word "crisis" originates in ancient Greek, where the verb "krinein" has the meaning of "to judge", "to separate" or "to decide". The Greek word "krisis", meaning "judgment" or "decision", is taken up in Latin, where it becomes "crisin", "crisis", then reaching its current meaning.

In DEX '98 [1] the word "crisis" has several meanings:

1. Manifestation of some difficulties (economic, political, social, etc.); period of tension, of disorder, of attempts (often decisive) which manifests itself in the society. ♦ Severe lack (of goods, time, labour).
2. Critical moment, the climax, in the evolution preceding the healing or worsening of a disease; sudden onset of a disease or sudden access to a chronic illness (crisis of appendicitis). ♦ Tension, moment of great soul depression, anxiety.

The **term crisis** is an element often used on various occasions and used as a fundamental notion in many sciences. In this regard, many definitions of the term crisis have been given:

- "Crisis is an unexpected event that endangers the reputation and functioning of an organization" [2].
- "The crisis is defined as a process which, under the effect of a trigger event, highlights a number of dysfunctions" [3].
- Crisis is "an unplanned, unwanted process of a limited duration and the possibility to have impact with ambivalent outcome" [4]. Crisis has to be understood as a process that is "capable of substantially threatening the survival of an organization or even makes survival impossible" [5]. According to Krystek, these occur by influencing certain purposes, the endangerment or failure of which is synonymous with a long-standing or even destruction. [6]
- "The crisis can be defined as a certain unexpected situation, which puts into question the responsibility of the enterprise in front of the general public and which threatens its ability to continue its activity normally" [7].

- "Crises are complex phenomena that can affect either the entire social ensemble or certain sectors of it (economic life, political system, international relations, financial-banking systems, social structure, educational institutions and culture, etc.)" [8].
- "The crisis is a major, unpredictable event that can lead to negative effects; they can affect the organization as a whole, or sectoral, its employees, products, services, financial status and reputation" [9].

In the ***Dictionary of Economics***, the **economic crisis** is presented as a "state of difficulty of economic activities, rupture, and sudden change in economic activity, materialized in the slowdown, stagnation or decline of economic activities" [10]. By extension, it represents a "depressing conjuncture for the economy as a whole, for some branches, regions, etc., a disease of the economic body that marks the serious breakdown of economic equilibrium, especially between production and consumption, between demand and supply, with direct effects on prices, employment and use of factors of production" [10].

The ***Dictionary of Sociology*** defines the crisis as a "period, in the dynamics of a system, characterized by the sharp accumulation of difficulties, the outbreak of conflict tensions, fact that makes difficult its normal functioning, with strong pressure to change" [11].

The ***Diplomatic Dictionary*** places the crisis in the political field and defines it as "the critical moment that occurs in the evolution of international life, of relations between states, a system, regime or government. Such manoeuvres, whether it is the internal life of a state or the international one, are characterized by sharpening of contradictions, the emergence of tension phenomena, changes in the ratio of forces" [12]. The political crisis is the result of the transition from a phase of structural stability of a society's political system to a phase of external instability. The exit from the crisis is possible in various ways, the choice depending on the ability of political factors.

International crises can be analysed in the light of the same considerations, with the distinction that the reference system is another, in terms of space, purpose, participants and their consequences, and last but not least, the magnitude of the means and forces needed to manage them.

Regardless of the type of crisis, it is bearing risks to national and international security and claims that appropriate decisions are taken quickly and tailored to the means necessary for its resolution.

2. The Concept of Resilience and Its Principles

In the context of recent global crises, **resilience**, a term generally used in the technical field and representing the resistance to shock of a metal or alloy [13], has begun to be increasingly used also in socio-human and economic fields. This word has become actually very "trendy", covering anything from psychology to management and strategy (Fig. 1).

Fig. 1. The multidisciplinary aspect of resilience [14]

In ***psychology***, Boris Cyrulnik, a renowned neuropsychiatrist, psychoanalyst and author of many books, including the best-selling "*Resilience: How Your Inner Strength Can Set You Free from the Past*", introduced the concept of resilience to designate "the ability to overcome the most serious psychological trauma and emotional wounds – illness, mourning, rape, torture, assault, deportation or war" [15]. Based on the numerous cases analysed in his psychotherapy cabinet or observed during his missions abroad, Cyrulnik argues that people have the capacity to overcome the most terrible situations due to certain skills that are trapped in childhood that helps them to get over traumatic experiences. As a therapeutic resource, resilience is a positive psychological adaptation to a significant stress factor that affects development and even survival. And it is true, from a certain point of view, resilience is also an art, the art of survival.

In ***ecology***, resilience is the ability of an ecosystem or species to recover normal functioning and development after having sustained a trauma; in this case, ecologists refer to "*resilience time* as that needed for an ecosystem to return to its original state after such a disturbance" [16].

In the ***field of economics***, resilience is the ability to recover growth after a crisis. From a macroeconomic point of view, "economic resilience refers to the ability of the country to withstand a shock and recover quickly to potential after it falls into recession" [17]. This definition of resilience is broadly in line with those used by the OECD, IMF and ECB.

Resilient economic structures herewith prevent that economic shocks have significant and persistent effects on income and employment levels and thus they can reduce economic fluctuation. From a business point of view, The British Standards Institution (BSI) regards organisational resilience as a strategic imperative for all companies, including small businesses. According to British Standard, BS 65000(2014), published by BSI, organisational resilience is "the ability of an organisation to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper" [18].

Regardless of the macroeconomic or microeconomic level, economic resilience entails three elements: (1) the vulnerability to shocks (2) the shock absorption capacity and (3) the ability to recover quickly after a shock; thereby, when a crisis occurs, resilience refers to actions of resistance to or absorption of the shock; after the crisis and at other points in time, resilience refers to the capacity for adaptation and renewal. Jamais Cascio, senior fellow at the Institute for Ethics and Emerging Technologies, sees the concept of resilience as being "the capacity of a system to tolerate disturbance without collapsing to withstand shocks, to rebuild itself when necessary, and to improve itself when possible" [19].

Essentially, resilience highlights the ability to withstand crises and to overcome the unexpected, based on the following **principles** [20]:

- **Diversity:** Not relying on a single kind of solution means not suffering from a single point of failure.
- **Redundancy:** Backup: never leave yourself with just one path of escape or rescue.
- **Decentralization:** Centralized systems look strong, but when they fail, they fail catastrophically.
- **Collaboration:** Be able to work together: take advantage of collaborative technologies, especially those offering shared communication and information.
- **Transparency:** Transparency makes it easier to identify where there may be a problem; share plans and preparations, and listen when people point out flaws.
- **Fail gracefully:** Failure happens, so make sure that a failure state won't make things worse than they are already.
- **Flexibility:** Be prepared to change plans when things do not go as expected; don't count on things remaining stable.
- **Foresight:** Think and prepare for the future.

3. The Relationship Between Crisis, Resilience and Marketing Strategies and Policies

Given the increasingly globalized and interdependent society that is currently facing a variety of crisis situations, applying these principles of resilience in establishing organizations' marketing strategies and policies seems indispensable for absorbing shocks, making changes inevitable and ultimately to ensure success.

Moreover, marketing is necessarily influenced by the environment to which it needs to adapt, and in particular to developments in the economic, social and technological environment. In this respect, some of the recent developments in the field of marketing have emerged around two main axes: **customization** and **digital transformation**.

Obviously, the crisis makes the company's marketing strategies and policies undergo a number of changes, the two marketing development axes mentioned above acquiring new meanings. Thus, increasing turbulences are transforming the world faster and in more dramatic ways than any time in the past sixty years. Today, customers are confronted with changes in their interests, budgets and values. Distribution channels take on new forms while new communication channels emerge. New competitors appear. New government legislation and regulation are imposed. Consequently, the company needs to revise its marketing policies and tools. We can notice ***four major changes in the marketing landscape*** [21] due to the two above-mentioned axes:

1. Customers are better informed than ever. They are empowered: they can find out almost anything about any product, service, or company by searching on the Internet and contacting others in their social networks.
2. Consumers move toward lower-priced products and brands. They will replace buying national brands with store brands and even generic brands. This changed behaviour will fall hard on national and international premium brands, especially the weaker higher-priced brands.
3. Competitive advantages have a much shorter life today: competitors are able to copy faster any new product or service, thus shortening the innovator's return on investment (ROI).
4. The Internet and social networks have created radically new media and information sources, as well as new means for direct-to-customer selling. In a viral and virtual world, like Internet is, where true and fake news spreads quickly, protecting brands and companies' reputation from sabotage can be an all-consuming task. Today's social networks provide a great opportunity for companies and their customers to amplify a brand's qualities, but not without risk.

These changes call for radically new thinking by managers and marketers. Clearly, marketing executives will want to do some **market research** to understand how customers are changing. Obviously, ***the crisis brings with it a change in people's behaviour***, as they become more suspicious, and are no longer willing to take risks. The advantage of market research in crisis situations is that it provides decision-making support, and valuable insights that reduce significantly the risks and ensure the success of marketing strategies during this period of rapid and profound changes in market segments, in perceptions and consumer behaviours. Otherwise they will have to depend solely on their own intuition and/or salespeople's views and experiences.

A significant marketing contribution in a time of crisis can materialize at the level of enterprises through innovation, by stimulating new projects and the development of creativity.

Periods of crisis also means opportunities, including the **launch of new products and brands**. A number of famous brands and businesses that were launched in periods of economic crisis are good examples to support the idea that innovation is important and present in such of times: People (magazine), Microsoft, FedEx, Pringles, MTV, Sony

Walkman, iPod. Or, do we need reminded that Danone, the giant in the field of dairy products, was born in the middle of the economic crisis of 1929, when Daniel, the son of Isaac Carasso, founded the Société Parisienne du Yoghourt Danone? We can also give the example of Meetic, one of the leading online dating services companies and European leader in the field with several tens of millions of members in total launched in November 2001 during the explosion of the tech bubble in 2000-2001.

In turbulent times the **communication policy** will focus mainly on tactical campaigns, while image campaigns remain in a second plan. Thus, campaigns will focus on customer needs and benefits and less on product or service characteristics. Meanwhile, advertising called "recovery or advocacy advertising" has a decreasing weight in the communication mix.

Crisis communication mostly uses non-media vectors. Also, public relations must, in some way, be "reinvented", with internal communication becoming imperative in this situation. A communication solution in times of crisis would consist in motivating and mobilising employees so as to communicate more, better and properly about the company they work in, about its products and services; in this way they become real vectors of communication. As a structure, communication budgets begin to focus primarily on the online environment in order to maximize efficiency.

Anyway, during the periods of crisis, the trend is to increase **direct marketing** through various methods (telemarketing, promotional discounts, drop-mail, viral email, newsletters, etc.) and unconventional channels, at the expense of traditional channels. A consequence of the crisis in terms of internet marketing is more and more advertising in online information sources, in the form of pop-ups, welcome screen, fragmented articles that are shorter to maximize the number of clicks [22].

In the view of marketing specialists, turbulence periods require the provision of customized information, exclusivity and a lot of creativity, finding new online communication channels, direct communication, BTL (below-the-line) and in-depth knowledge of the customer's business.

Regarding the **distribution** system, unlike the usual way of distribution with intermediary links between the producer and the final consumer, during the crisis, there is a clear tendency on the market to eliminate the middleman.

4. Conclusions

We have just tried to show in this chapter that turbulent times call for many changes – both strategic and tactical – in a company's marketing efforts. From a strategic point of view, companies must remain focused on satisfying their target customers, paying particular attention to their best customers. Each company must act in a way that best promises to preserve its customers, its brand strength, and its long-term objectives.

It is said that great marketers don't just rebound from crises, they build the internal capacity "to expect the unexpected"; in other words, they build resilience. They continuously reinvent business models and marketing strategies during chaotic times so that they can adapt quickly as circumstances in the marketplace change.

To be better and win, every enterprise, regardless of its size, domain of activity or location, must develop an approach to resilience that is right for it – underpinned by its values and defining its brand.

In the context of a dynamic environment and with many forms of risk manifestation, the Chief Marketing Officer's (CMO) list of responsibilities continues to get longer and more complex. Today's marketing executives know they should forge growth and innovation, promote the brand, create a great customer experience and gain insights from data.

It is obvious that the Internet Era has forever changed the marketing landscape, opening up vast new opportunities, but also introducing a number of new risks. "To improve chances of success in the future, CMOs should assume the responsibility to assess and plan for ongoing risk and make it an ongoing priority" [23].

REFERENCES

[1] Dicționarul Explicativ al Limbii Române (1998). Ediția an II-a, București: Editura Univers Enciclopedic, p. 241.
[2] Libaert, T. (2015). La communication de crise, 4e édition, Paris: Ed. Dunod, p. 9.
[3] Roux-Dufort, C. (1999). La gestion de crise, Bruxelles: De Boeck Universite.
[4] Krystek, U. (1987). Unternehmungskrisen. Beschreibung, Vermeidung und Bewältigung überlebenskritischer Prozesse, Wiesbaden.
[5] Krystek, U. (1981). Krisenbewältigungs – Management und Unternehmensplanung, Wiesbaden: Gabler.
[6] Abrudan, M. (2008). PR-ul contemporan și comunicarea de criză, în Balaban, D., Abrudan, M. (coord.), Tendințe în PR și publicitate: planificare strategică și instrumente de comunicare, București: Editura Tritonic, p. 94.
[7] D'Humieres, P. (1993). Management de la communication d'entreprise, Paris: Ed. Eyrolles, p. 272.
[8] Coman, C. (2001). Relațiile publice: principii și strategii, Iași: Editura Polirom, p. 118.
[9] Barton, L. (1993). Crisis in Organisation: Managing and Communicating in the Heat of Chaos, South Cincinatti: Western Publ., p. 2.
[10] Dobrotă, N. (coord) (1999). Dicționar de economie, București: Editura Economică, p. 149.
[11] Zamfir, C., Vlăsceanu, L. (coord) (1993). Dicționar de sociologie, București: Editura Babel, p. 145.
[12] Dicţionar diplomatic (1979). București: Editura Politică, pp. 315-316.
[13] Marcu, F., Maneca, C. (1986). Dicţionar de neologisme, Bucureşti: Editura Academiei.
[14] Reghezza-Zitt, M. *et al*., (2012). What Resilience Is Not: Uses and Abuses, Cybergeo : European Journal of Geography, [Enligne], Environment, Nature, Paysage, document 621, 18 octobre, available at http://journals.openedition.org/cybergeo/25554.
[15] Cyrulnik, B. (2005). *Murmurul fantomelor*, Bucureşti: Editura Curtea Veche, p. 2.
[16] Francart, L. (2010). Résilience: de quoi s'agit-il? Revue Défense Nationale, n° 727, Fevrier.
[17] European Commission (2017). Economic Resilience in EMU, Note for the Eurogroup, Brussels, September 13, p. 2.
[18] Allen, T. (2016). Why organisational resilience is the key to long-term prosperity for SMEs, The Telegraph, 6 May, available at https://www.telegraph.co.uk/business/british-standards-institution/organisational-resilience/.
[19] Cascio, J. (2008). Building Civilizational Rezilience, 19 November, available at www.openthefuture.com.
[20] Cascio J. (2009). Rezilienţa, Dilema veche, nr. 274, 14 Mai, available at https://dilemaveche.ro/sectiune/tilc-show/articol/rezilienta.
[21] Kotler, Ph., Caslione, J.A. (2009). Chaotics: The Business of Managing and Marketing in the Age of Turbulence, New York: AMACOM books, p. 140.
[22] Drezner W. D. (2009). Criza cu picioare lungi. 13 consecințe neașteptate ale crizei financiare, Foreign Policy Romania, martie/aprilie, pp. 95-96.
[23] Davis, T. (2016). What CMOs Should Know About Risk: Resilience and Performance, The Wall Street Jounal, 18 July, available at http://deloitte.wsj.com/riskandcompliance/2016/07/18/what-cmos-should-know-about-risk-resilience-and-performance/.

Entrepreneurship Determinants: Areas of Genetic Impact

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1. Introduction

The basis of human decisions are their genetic conditions. There are various types of relationships between these elements: the genotype that each individual has (and specific gene alleles in it), environmental influences, and decisions. Economic decisions made by people professionally running their own businesses, employees, or ordinary people who do not run a business are also influenced by genetic factors. It would seem that simple decisions such as opening a bank account or starting a business are only conditioned by human willingness and opportunities created by the environment. However, the genetic factors cannot be overestimated here [12]. Like in every other human decision-making area, genes influence these basic and more complex decisions. We make decisions with our gonads: we use our hormones to make choices, including economic ones [18], [27], [8].

The purpose of this chapter is to identify areas of economic and entrepreneurial decisions that are affected by genetic factors.

2. Decision Determinants

To analyse the research of the human genome and its relationship with the decisions made, several basic areas of analysis should be distinguished. These are included as follows [13]:

- Intuition in decision making
- Collecting information as a basis for making decisions
- Risk taking
- Making collective decisions
- Personality
- Temperament
- Intelligence

The areas listed above are important. It is known that the efficiency of an organization depends on the effects of decisions made by managers and people employed by them. For example, if the managers of a company make the bad decision, the firm may go bankrupt. But if everyone makes good decisions, the company will perform very well. Undoubtedly, decision-making skills are key to a company's performance. Now, we need to delve into the dilemmas associated with these choices. It can be presented in the form of a series of research questions. Why do we make these or other choices? Why do some of us make decisions instinctively and others use complex decision-making tools? Why do some of us make choices without due diligence, while others analyse large amounts of data before making a final decision?

Of course, there are many reasons why we make choices. Usually, it is experience from observing our parents' activities, school, or work [26], [17], [21], [10], [9]. But genetics are also valid.

3. Entrepreneurship Determinants

In the context of the research made in this chapter, one more factor must be mentioned: genetics. We are already born with the predisposition to make choices in a certain way. In fact, our DNA affects many aspects of decision making, from how rational or irrational our choices are, to the level in which we can forecast the future, by how much information we need to choose between alternatives, and how intuitive our decisions are [17].

The previous section discusses the basic relationships between genetic determinants and economic decisions. It was highlighted that certain areas of decisions, related to broadly understood economics, are closely related to the genes that shape them. In deepening this analysis, one should answer the next question: whether certain areas related to business activities, and thus the establishment and management of an enterprise, may be steered by our genes?

By analysing the available economic literature, there are several areas that should be considered. They are as follows:

- Interest in a specific type of work (i.e., for example, making the decision to start a business) – is the interest genetically determined and how?
- Satisfaction with the work performed – do our genes affect satisfaction?
- Management style at work – is our approach to personnel management genetically determined?
- Leadership – are we genetically prepared for leadership?
- Creativity and innovation – to what extent do our genes support this way of thinking?
- Work efficiency – can our genes make us more effective at work?

Interest in work is one of those features that is genetically controlled. Regardless of whether it is about office or physical work, our genes whether we are more or less interested in our work or make decisions that lead to a specific profession. Studies conducted on identical twins, which were separated in their childhood due to fate, show that almost equal choices were made by twins, regardless of whether they were raised together or not [28].

Research shows that genes affect people's professional interests [11]. There are several possible classifications of these impacts on people's interests, including those broken down into occupations or fields of study, which further influence choices of occupation or career [23].

Studies have confirmed that genetics account for nearly one third (30 percent) of the difference between overall **job satisfaction** [2]. Moreover, our DNA affects both internal and external job satisfaction [5]. Internal job satisfaction is a type of satisfaction resulting from the nature of the job itself, while external job satisfaction is one that comes from the context in which the work is done, such as working conditions, the remuneration of an employee, or the employee's boss. Some people have an innate tendency to be content with the type of work they are doing, the payment they receive, and the conditions under which they do it.

Genes affect many aspects of management style, from self-targeting to tolerance of change in competitiveness level. Genes play a vital role in managing ourselves and others.

How does our DNA affect these differences between us? Three mechanisms operate here [19]: the instruction for the production of neurotransmitters [22], coding for hormone production [29] and our predisposition to develop personality traits associated with some management approaches [16]. Numerous studies show that genes affect different dimensions of leadership. Our DNA affects the approach to leadership, the ability to lead a group, and readiness to take the leadership role. For example, part of the attitude towards leadership is genetic. In fact, studies of identical twin brothers show that genetics make up about 40 percent of the difference between people in what they think of leadership [3].

There are arguments that having the right work environment or training is important to make people more **creative and innovative**. And this is right. However, people have a genetic predisposition to being inventive and ingenious. Studies of the creative thinking of identical twin brothers growing up separately show that innovation has a significant genetic component, and as much as 55 percent of the difference in standard creativity tests is due to genes [7]. In one study, half of the pairs of identical twins grew up in separate homes, often distant by many kilometres, had the same creative temperament, while twin brothers raised together had corresponding results of only 12 percent similarity. Creative thinking is obviously not the only dimension that measures innovation. Some observers focus on the imagination. Studies show that between 34 and 40 percent of the difference between vivid imagination and 49 to 52 percent of the diversity in twins' intellectual curiosity and openness to new ideas are explained by the genes [6].

Genes also affect **work results**. Of course, genetic effects must work through a kind of indirect mechanism. But what is this path? Researchers have found evidence for three different pathways: *temperament, personality, and cognition*. A meta-analysis of many job satisfaction surveys conducted by psychologists in various environments over many years shows that between 10 and 25 percent of the difference between job efficiency – especially job satisfaction, happiness with colleagues, and the perception of stress at work – is the result of changes in *temperament*. People with a negative attitude to life are more likely to experience stress at work and are less satisfied with their work and relationships with colleagues than people with a more positive outlook [20], so they work with lower efficiency.

Personality is another genetically regulated factor. Research indicates that people with high self-esteem (people with high self-esteem, self-efficacy, emotional stability and an internal locus control) are usually satisfied with their work [15]. Genetics also affect *cognitive abilities*. This genetically influenced variation in mental abilities can lead to differences in attitude towards work. Therefore, having versions of genes that increase intelligence may explain some difference between employees [1].

4. Conclusions

As indicated above, genetic factors have a significant impact on people's behaviour. This applies to everyday life as well as the decision to start a business. Key areas in which genes are important in entrepreneurial decisions have been identified. These, in turn, affect the decision to establish a business or another form of professional implementation. Interestingly, genes also affect the choice of a particular profession or business area. This is shown in Table 1.

Table 1. Differences in vocational interest due to genetic factors

No.	Vocational interest dimension	Percentage of difference that is genetic
1	Creative arts	74
2	Physical science	68
3	Engineering	61
4	Nature/agriculture	61
5	Business	59
6	Technical writing	59
7	Personal service	58
8	Teaching	58
9	Authorship/journalism	56
10	Social service	54
11	Law	51
12	Skilled trades	50
13	Professional advising	49

Source: [6], [23], [4], [14].

In conclustion, each person's decisions are determined by his or her genotype. What decisions are made does not depend only on knowledge or experience, but also internal biological factors-genes.

REFERENCES

[1] Allen, J., & van der Velden, R. (2001). Educational Mismatches versus Skill Mismatches: Effects on Wages, Job Satisfaction, and On-the-Job Search. Oxford Economic Papers, 53(3), pp. 434-452.

[2] Arvey, R., Bouchard Jr, T., Segal, N., & Abraham, L. (1989). Job Satisfaction: Environmental and Genetic Components. Journal of Applied Psychology, 74, pp. 187-192. https://doi.org/10.1037/0021-9010.74.2.187

[3] Arvey, R. D., Rotundo, M., Johnson, W., Zhang, Z., & McGue, M. (2006). The determinants of leadership role occupancy: Genetic and personality factors. The Leadership Quarterly the Leadership Quarterly, 17(1), pp. 1-20.

[4] Betsworth, D. G., Bouchard, Jr., Thomas J., Cooper, C. R., Grotevant, H. D., Hansen, J.-I. C., Scarr, S., & Weinberg, R. A. (1994). Genetic and Environmental Influences on Vocational Interests Assessed Using Adoptive and Biological Families and Twins Reared Apart and Together. Journal of Vocational Behavior Journal of Vocational Behavior, 44(3), pp. 263-278.

[5] Bouchard Jr., T. J., & McGue, M. (2003). Genetic and environmental influences on human psychological differences. Journal of Neurobiology, 54(1), pp. 4-45. https://doi.org/10.1002/neu.10160

[6] Bouchard, T. J., & McGue, M. (1990). Genetic and Rearing Environmental Influences on Adult Personality: An Analysis of Adopted Twins Reared Apart. JOPY Journal of Personality, 58(1), pp. 263-292.

[7] Bouchard, T. J., McGue, M., Hur, Y.-M., & Horn, J. M. (1998). A genetic and environmental analysis of the California Psychological Inventory using adult twins reared apart and together. Eur. J. Pers. European Journal of Personality, 12(5), pp. 307-320.

[8] Burnham, T. C. (2007). High-testosterone men reject low ultimatum game offers. Proceedings. Biological Sciences, 274(1623), p. 2327.

[9] Corrigendum: Information Search in Decisions from Experience: Do Our Patterns of Sampling Foreshadow Our Decisions? (2017). Psychological Science, 28(9), pp. 1364-1366. https://doi.org/10.1177/0956797617717946

[10] Dunn, B. D., Galton, H. C., Morgan, R., Evans, D., Oliver, C., Meyer, M., Cusack, R., Lawrence, A. D., & Dalgleish, T. (2010). Listening to Your Heart: How Interoception Shapes Emotion Experience and Intuitive Decision Making. Psychological Science, 21(12), pp. 1835-1844. https://doi.org/10.1177/0956797610389191

[11] Harrison, T. L., & Frakes, M. H. (2005). Instinct: Tapping Your Entrepreneurial DNA to Achieve Your Business Goals. Warner Business Books. https://books.google.pl/books?id=uDIQGwAACAAJ

[12] Matsushita, R., Baldo, D., Martin, B., & Da Silva, S. (2007). The biological basis of expected utility anomalies.

[13] McGuffin, P., Riley, B., & Plomin, R. (2001). Toward Behavioral Genomics. Science, 291(5507), 1232. https://doi.org/10.1126/science.1057264

[14] Moloney, D. P., Bouchard, T. J., & Segal, N. L. (1991). A Genetic and environmental analysis of the vocational interests of monozygotic and dizygotic twins reared apart. YJVBE Journal of Vocational Behavior, 39(1), pp. 76-109.

[15] Neiss, M. B., Stevenson, J., Sedikides, C., Kumashiro, M., Finkel, E. J., & Rusbult, C. E. (2005). Executive self, self-esteem, and negative affectivity: Relations at the phenotypic and genotypic level. Journal of Personality and Social Psychology, 89(4), pp. 593-606. https://doi.org/10.1037/0022-3514.89.4.593

[16] Noble, E. P., Ozkaragoz, T. Z., Ritchie, T. L., Zhang, X., Belin, T. R., & Sparkes, R. S. (1998). D2 and D4 dopamine receptor polymorphisms and personality. AJMG American Journal of Medical Genetics, 81(3), pp. 257-267.

[17] O'Reilly, C. A. (1982). Variations in Decision Makers' Use of Information Sources: The Impact of Quality and Accessibility of Information. Academy of Management Journal, 25(4), pp. 756-771. https://doi.org/10.5465/256097
[18] Pinker, S. (2009). The sexual paradox: Men, women, and the real gender gap. /z-wcorg/. https://www.overdrive.com/search?q=DC191459-D11C-413C-B7A4-E7125E1725E9
[19] Plomin, Richard, DeFries, J. C., McClearn, G. E., & McGuffin, P. (2008). Behavioral Genetics. Worth Publishers.
[20] Plomin, Robert. (1992). Genetics and Experience: The Interplay between Nature and Nurture, Thousand Oaks, CA: Sage; Plomin, R., and Neiderhiser, J. 1992. Genetics and experience. Current Directions in Psychological Science, 1 (5): pp. 160-163. Sage.
[21] Raju, P. S., Lonial, S. C., & Glynn Mangold, W. (1995). Differential Effects of Subjective Knowledge, Objective Knowledge, and Usage Experience on Decision Making: An Exploratory Investigation. Journal of Consumer Psychology, 4(2), pp. 153-180. https://doi.org/10.1207/s15327663jcp0402_04
[22] Reif, A., & Lesch, K.-P. (2003). Toward a molecular architecture of personality. Behavioural brain research, 139, 1–20. https://doi.org/10.1016/S0166-4328(02)00267-X
[23] Roberts, C. A., & Johansson, C. B. (1974). The Inheritance of cognitive Interest Styles Among Twins. Journal of Vocational Behavior, 4(2), pp. 237-242.
[24] Shane, S. (2010). Born Entrepreneurs, Born Leaders: How Your Genes Affect Your Work Life. Oxford University Press.
[25] Spinath, F. M., & Johnson, W. (2013). Behavior Genetics, pp. 269-304.
[26] Taylor, R. N. (1975). Age and Experience as Determinants of Managerial Information Processing and Decision-Making Performance. Academy of Management Journal, 18(1), pp. 74-81. https://doi.org/10.5465/255626
[27] White, R. E., Thornhill, S., & Hampson, E. (2006). Entrepreneurs and evolutionary biology: The relationship between testosterone and new venture creation. YOBHD Organizational Behavior and Human Decision Processes, 100(1), pp. 21-34.
[28] Wray, N. (2005). Indivisible by Two: Lives of Extraordinary Twins. Twin Research and Human Genetics – TWIN RES HUM GENET, 8, pp. 666-668. https://doi.org/10.1375/twin.8.6.666
[29] Zuckerman, Marvin. (1983). Biological bases of sensation seeking, impulsivity, and anxiety. L. Erlbaum Associates.

Competitive Punishment in Population Prisoner's Dilemma

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1. Introduction

The Prisoner's Dilemma (PD) is one of the most studied games. It is an example of a social dilemma where the self-interest of players leads to an outcome that is suboptimal. The game has been used to model many strategic situations that comprise both cooperation and defection, cf. [1, 2]. Cooperation leads to a Pareto optimal outcome, but each player has an incentive to move away from cooperation and into defection resulting in a Nash equilibrium that is not Pareto optimal, cf [3].

The main problem associated with the PD game is about ways of introducing cooperation.

When the game is played repeatedly for an infinite number of rounds or when after each round there is a given probability that the game continues, payoffs of players depend on the entire sequence of round payoffs. If the payoffs are not discounted too heavily, then one can devise strategies that allow for cooperation, cf. [4]. Each such strategy works by creating a threat of defecting in the future contingent on defecting in the past. That is if a cooperating player meets with a defecting player, she will defect in the future (there are variants of the strategy with varying degree of future defection). The simplest strategy is to start cooperating and switch to defecting once an opponent defect. The threat is credible if the future matters and the game is repeated against the same opponent.

The problem with the described strategy type is twofold. First, the game needs to be repeated an infinite number of rounds. Second, a player needs to engage the same opponent.

These two requirements are problematic in a large population where players are matched at random, and the probability of playing against the same player is small. Thus, in each round, the game is essentially a one-shot game.

In the current chapter, we show that it is possible to create a punishment mechanism that allows a population to cooperate in a one-shot PD. A population funds the mechanism, and the funding is used to "produce" punishment for defecting players. The mechanism is affordable and works for any "punishment production function" provided that the population is large enough. Also, players are better off in the presence of such a mechanism; therefore, the mechanism is accepted voluntarily.

From a technical point of view, the proposed model is a competitive game. Players need to decide not only on competitive strategies, like in any normal form game but also on a cooperative strategy – an amount of funding devoted to the punishing scheme. The level of funding must be agreed on by all members of the population; if no funding is devoted, then there effectively is no punishing scheme. We show that for any "punishment production function" affordable funding is agreed on and full cooperation is an equilibrium.

The chapter is organized in the following way. Section 2 describes the competitive game including the punishment scheme while section 3 contains the main theorem and discussion.

2. Model

We assume a population of size N, where N is an even integer. Players are matched into pairs to play a standard PD with the following general payoff matrix

$$A = \begin{bmatrix} R & S \\ T & P \end{bmatrix} \quad (1)$$

with standard assumptions $T > R > P > S > 0$. The top row corresponds to the cooperation strategy C, and the bottom row corresponds to the defection strategy D. Because $R < T$ and $S < P$, the defection strategy strictly dominates the cooperation strategy and the only Nash equilibrium in a population is a profile $(D, \dots, D) \in \{C, D\}^N$.

To make cooperation across the population possible in a one-shot population game, we introduce a punishing mechanism. Population funds the mechanism with a single tax c, that is, each player's payoff is diminished by c, regardless of the strategy.

The tax is used to fund the "production of punishment" that is modeled with a function k.

The punishment works by diminishing payoffs of defecting players. More precisely, let n be the number of cooperating players, then $N - n$ is the number of defecting players. The total funding is cN and the total punishment is $k(cN)$. The payoff of each defecting player is diminished by $k(cN)/(N - n)$ if there are defecting players, that is, when $n < N$.

Concluding, the final payoff matrix for a game with the punishing scheme reads

$$A = \begin{bmatrix} R - c & S - c \\ T - c - k(cN)/(N - n) & P - c - k(cN)/(N - n) \end{bmatrix} \quad (2)$$

The game described above is now the competitive game, cf. [5]. Each player needs to decide on the individual strategy choosing between cooperation and defection but also a cooperative strategy c needs to be decided. Technically, each value of c defines a separate game (thus creating a family of games) and in each such game, a set of Nash equilibria defines a set of payoffs. The family of the payoffs defines a set of viable options to the population with a status quo point corresponding to $c = 0$. Thus, formally a bargaining problem is defined. Since we do not use the formalism in the subsequent discussion, we do not provide here formal description of the bargaining problem and refer to [5] for mathematical details.

3. Discussion

We do not strive to find an optimal punishment scheme; we merely want to show that there exists a viable mechanism of that kind that ensures population-wide cooperation as a Nash equilibrium. To this end, we need to make parts of the model more precise.

First, we start with the "punishment production function" k. We assume that $k(0) = 0$, that is, if there is no funding, there is no punishment. Therefore, if the decided tax is $c = 0$, there is no pushiment and the game is identical with a standard PD game. Hence, this is the status quo option. Second, we assume that k is increasing, formally $k'(c) > 0$ for any c. If the funding increase, so does the total punishment that the population may exercise. We assume neither a particular function nor a particular shape of the function. However, the usual choice for a production function would be a concave function.

Second, we need to specify one additional condition on the punishment scheme. We want the scheme to be affordable, meaning that each member of the population can afford the tax c regardless of the payoff. For this, we need to have $0 \leq c < S$. We are now ready to state the main result of the chapter.

Theorem. Let the payoffs be specified by (2). Let the function k satisfies $k(0) = 0$ and $k'(c) > 0$ for any $0 \leq c < S$. Then, there exists $0 < c^* < S$ and the minimum size N of a population that the profile $(C, \dots, C)$ is a Nash equilibrium.

Proof. We already know that $0 \leq c < S$. We need every member of the population to agree on the scheme. If under a scheme the profile $(C, \dots, C)$ is a Nash equilibrium, then each player receives the payoff of $R - c$. If there is no scheme, that is $c = 0$, then the payoff received by each player, at the only Nash equilibrium $(D, \dots, D)$, is P. Thus, if each player is to agree on the mechanism, we need to have $R - c > P$. Combining these two conditions we have

$$0 \leq c < min(S, R - P) \tag{3}$$

Let $c > 0$ by arbitrary small. In order to make the profile $(C, \dots, C)$ a Nash equilibrium, we need to have the payoff yielded by a defection strategy smaller than the payoff yielded by a cooperation strategy. That is, no single player can have any incentives to deviate from cooperation. If only a single player deviates then her payoff is $T - c - k(cN)$, because of $N - n = 1$. Thus, the formal condition is $T - c - k(cN) < R - c$. We have

$$T - c - k(cN) < R - c$$
$$T - R < k(cN)$$
$$k^{-1}(T - R) < cN$$

The inverse function k^{-1} is well defined since k is injective and it is an increasing function implying that $k^{-1}(T - R) > 0$. Let c^* be any positive number satisfying $c^* < \min(S, R - P)$.

For any such number, we can take a population of the size

$$N > \frac{1}{c^*}\, k^{-1}(T - R) \tag{4}$$

that is large enough to satisfy the conditions. The proof is complete.

Inequality (4) gives a lower bound on the size of a population. The lower the tax, the larger the population required to support the scheme. We can, however, get an inequality for the minimal size of a supporting population.

Corollary 1. The minimal size of a supporting population reads

$$N > \frac{k^{-1}(T - R)}{\min\,(S, R - P)}$$

given all previous assumptions.

Proof. The proof follows directly from (3) and (4). We have

$$k^{-1}(T - R) < cN < \min(S, R - P)\, N$$
$$N > \frac{k^{-1}(T - R)}{\min\,(S, R - P)}$$

and the proof is complete.

The formula given by corollary 1 depends on two differences. The first one, $T - R$, defines greed, cf. [7, 8, 9]. The higher is the value of this difference, that is the more greed in the game, the larger the population required for supporting the punishing scheme. The second difference, $R - P$, comes from the fear part of a social dilemma. Fear occurs when $R > S$ and $P > S$, subtracting the inequalities we get $R - P > 0$ which is precisely the term in the denominator (mitigated by the value of the minimal payoff S).

Suppose that the punishment scheme is in place. To make a profile of full cooperation a Nash equilibrium, it is enough to discourage a single player from deviating to defection.

Consider now a coordinated attempt to switch from coordination to defection, more formally, let exactly $m < N$ players switch from coordination to defection, leaving only $n = N - m$ players cooperating. It is possible in a large population that the cooperation strategy still yields higher payoffs than the defection strategy, that is cooperation is an evolutionarily stable strategy, cf. [6].

Corollary 2. If the size of population is large enough, then the cooperation strategy yields a higher payoff against the defection strategy in a mixed population. Thus, cooperation is an evolutionarily stable strategy.

Proof. Let $m < N$ players switch from the cooperation strategy to the defection strategy leaving $n = N - m$ cooperating players. The minimum payoff of a cooperating player is $S - c$ while the maximum payoff of a defecting player is $T - c - k(cN)/m$. We have

$$S - c > T - c - \frac{k(cN)}{m}$$
$$k(cN) > m(T - S)$$
$$cN > k^{-1}(m(T - S))$$

Let c^* be any positive number satisfying $c^* < \min(S, R - P)$. For any such number, we can take a population of the size

$$N > \frac{1}{c^*}\, k^{-1}(m(T - R)) \tag{5}$$

that is large enough to satisfy the conditions. The proof is complete.

Concluding, in a population playing one-shot PD game, it is possible to introduce a punishment scheme that makes full cooperation not only a Nash equilibrium but also makes cooperation an evolutionarily stable strategy. The critical factor is not a particular shape of a "punishment production function" or a level of taxations funding the scheme, but the size of a population.

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REFERENCES

[1] Poundstone, W. (1992). Prisoner's dilemma: John von Neuman, game theory, and the puzzle of the bomb. *Anchor; First Edition Thus edition.*

[2] Amadae, S. (2016). Prisoners of Reason: Game Theory and Neoliberal Political Economy. *Cambridge: Cambridge University Press.* doi:10.1017/CBO9781107565258

[3] Fudenberg, D., & Tirole, J. (1996). Game theory. *Cambridge, Massachusetts: The MIT Press.*

[4] Axelrod, R. (1984). The evolution of cooperation. *New York: Basic Books, 2006.*

[5] Carfi, D. (2015). A model for competitive games. *Journal of Mathematical Economics and Finance* 1(1), pp. 46-75.

[6] Weibull, J. W. (1997). Evolutionary game theory. *Cambridge, Massachusetts, London: The MIT Press.*

[7] Kollock, P. (1998). Social dilemmas: The anatomy of cooperation. *Annual review of sociology*, *24*(1), pp. 183-214.

[8] Van Lange, P. A., Balliet, D. P., Parks, C. D., & Van Vugt, M. (2014). *Social dilemmas: Understanding human cooperation*. Oxford University Press.

[9] Płatkowski, T. (2017). On Derivation and Evolutionary Classification of Social Dilemma Games. *Dynamic Games and Applications*, *7*(1), pp. 67-75.

Corruption Perceptions on Business to Business Relations

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1. Introduction

Corruption is defined by Transparency International as "the abuse of entrusted power for personal gain" [1]. This definition mainly refers to the "abuse of entrusted power" as coming from the high level of government, low and mid-level public officials or political decision makers [1], and relates to the public sector. Most of the research concentrates on corruption where public money is involved, and much more attention is paid to corrupt practices met in the relationship between governmental bodies and businesses (B2G) [2, 3, 4, 5].

With such a focus on studying corruption in terms of the public sector and public money, it is not a surprise that B2B corruption, also known as private corruption in the literature, is an understudied field. Reasons are numerous and can be related to the vagueness of the corruption concept itself, difficulties in identifying and measuring corruption in general and among businesses in particular, and insufficient acknowledgement that B2B corruption is, much like public corruption, a phenomenon with negative consequences on society [6, 3, 7].

When B2B corruption is addressed in a country like Romania, the scarcity of the literature devoted to B2B corruption is explained by the fact that public corruption is the major concern for Romanians and for international institutions present in the country (e.g., the EU, the Council of Europe, the World Bank, etc.). In international rankings, Romania scores among the most corrupt countries of the EU, and problems related to public corruption affect the welfare of the population, the efficiency of the investors (both foreigners and Romanians), and the fairness of market relations [8, 9, 10, 11].

This chapter was inspired by one of the very few research studies conducted on the topic of B2B corruption. In his work, C. Gopinath [3] draws the attention toward difficulties in assessing corrupt practices in a private context. He used a scenario of a payment required by a duty custom officer in order to smooth the process of an import, in order to determine how graduate – business school – students perceive/interpret an ethical issue (bribery) and to explore the justifications behind their reactions.

2. Methodology

In order to determine the level of awareness of business to business (B2B) corruption and to identify how B2B corruption is perceived by young managers in Romania, four focus groups were organized between November 2017 and January 2018 in three major cities (two in Bucharest, one in Brasov and one in Iasi). 35 persons participated in these focus groups: 9 in Brasov, 10 in Iasi, and 16 in Bucharest. All participants were employed in a private company. There were 20 men and 15 women. The only selection criteria were to be employed in a private company and to have a middle management position in that company.

There were two stages of the discussion engaged through focus groups. The first one was a general talk about the existence of B2B corruption in Romania, from the participants'

business experience. The purpose of this general discussion was to determine the level of awareness of the phenomenon, how B2B corruption is perceived in the general debates about corruption, and how the general perception about corruption in Romania affects B2B relations in general and the perception of B2B corruption, in particular.

The second stage involved a discussion on four mini-case studies in the context of B2B corruption, to see if the participants recognize forms of B2B corruption and they justify these practices. These mini-case studies were built by the authors, starting from actual situations discovered on the Romanian market and disclosed to the authors by different business people, and inspired by the study conducted by C. Gopinath in 2008 [3]. Three of the mini-case studies expressed a possible B2B corrupt practice: bribery (mini-case study one), dubious commission (mini-case study two), and nepotism/favouritism (mini-case study three). The fourth mini-case study illustrates a legal practice. The purpose of the fourth mini-case study was to test the extreme attitude of participants, when everything is potentially considered corrupt, even in situations when no breaches of the law exist, and to identify the reasons behind this attitude. Participants were asked to read these case studies and then say if the practice exposed through them can be considered corrupt practices. They were then asked to explain their reasoning.

mini-case study#1 (bribery)

NetgenRo Ltd. is a local manufacturer of auto parts, available through networks of specialized stores. You are primarily responsible for selling these products and placing them on distribution networks with the goal of increasing sales. In this capacity, you interact with Mr. Ionescu, director of the ABC retail chain, who has not yet distributed NetgenRo products. To approve the sale of NetgenRo's products through ABC network, Mr. Ionescu asks you a commission to guarantee acceptance of the products. Payment will be made in cash to Mr. Ionescu at least 5 days before accepting the delivery of NetgenRo products to the ABC network.

mini-case study #2 (dubious commission)

SolionetIT Ltd is a distributor of IT equipment on the Romanian market: computers, printers, etc. Traditionally, products are sold through direct distribution channels (through the company's website) and small companies. Due to low profitability, the employer decided to look for clients among the big companies on the Romanian market. You are the marketing manager of SolionetIT and you have hardly gotten a meeting with the head of the procurement department of an important insurance company, Mr. Georgescu. At the meeting, Mr. Georgescu suggests that he would be interested in the products sold by SolionetIT, but only under certain conditions. One of these is to work through another company, Intermedallio Ltd., which will retain 10% of the total amount of the contract and then sell the products to the final customer, the insurance company. You are assured that you can add 10% above list prices, so that the profitability of SolionetIT will have nothing to suffer.

mini-case study #3 (nepotism/favoritism)

Haine4everyro Ltd. is a clothing manufacturer in Romania. For its products, it needs synthetic yarns, which it can order from multiple suppliers. At the beginning of the year, it receives two offers that meet technical specifications and quality standards: from FireABC and FireXYZ. You are the head of the procurement department of Haine4everyro and you should make a recommendation to the general manager. The offers are virtually identical in all respects, but FireXYZ's employer is your childhood friend. You decide to recommend FireXYZ as a provider of yarn for the company you are working on.

mini-case study #4 (legal practice)

Cabluromall Ltd is a manufacturer of electrical cables, for which it needs raw materials, including copper. The company wants to significantly reduce production costs, so it actively seeks a copper supplier at a better price. In this sense, you contact the company

Specialintermedro SRL, which offers to approach the company CupruUZB from another country, in exchange for a brokerage commission, established by contract. CupruUZB prices are much more attractive than any other variation in the market, and direct links with that company cannot be established. As Managing Director of Cabluromall, you decide to conclude a contract with Specialintermedro SRL and you are committed to paying a bank transfer fee with the delivery of each freight from CupruUZB.

The discussions were not recorded (at the request of the participants), but notes were taken by the authors. The participants expressed their agreement to be part of the research before the start of each discussion, and they were informed that they could leave the discussion at any point.

The notes were coded (in vivo codes and codes generated by the authors based on the literature review) and, from this starting point, several themes were generated. These themes are analysed in the context of the evidence offered by the existing literature, and conclusions are then formulated.

There are also key *limits* of this study. The number of focus groups was too limited to generalize the conclusions for the entire business environment corruption in Romania. Rather than building a theory on B2B corruption, this study's focus is to provide empirical evidence about the awareness of B2B corruption practices in Romania, to underline the importance of the general perception of corruption on B2B relations, and to identify the opinion that young managers have toward B2B corruption in Romania. No comparisons among regions or among Romanian/foreign companies are made at this point. Further research can develop comparisons between industries or between companies based on their type of ownership. This study offers useful conclusions that support more research in the field. Moreover, there are very few research studies of B2B corruption, and basically none of them cover the Romanian market. Therefore, this study contributes, in a qualitative way, to enriching the empirical evidence base regarding this unstudied area – B2B corruption.

3. Discussion

The first conclusion emerged in the first stage of the focus group discussions was that all the participants acknowledged corruption as a phenomenon present in B2B relations, not just in transactions involving public institutions. "Corruption is everywhere, in different forms, at different levels, and takes different shapes. Business are no different" (F, 32, male; G, 35, male; E, 31, female).

All participants admitted that B2B corruption is less addressed than B2G corruption in the general debate, and people pay less attention to this phenomenon: "when we discuss about private money it is not so interesting as when we discuss about public money, how they are spent, who benefits versus who should benefit" (A, 30, male).

Most of the participants (around ¾) considered that it is normal to pay less attention to B2B corruption: it is a "private matter" (V, 32, male) and the effect on society is quite limited, "due to the cathartic effect of the competition." "As long as private money is involved, and consumers are not affected, B2B corruption is the owners', shareholders' concern" (H, 30, male). "If you can afford to pay a bribe to another business and your company is still doing well, then so be it…" (C, 31, male).

Public corruption, however, affects all members of the society and has consequences on all levels: "When you pay your taxes, as an individual or as a company, and the state promises you certain services in exchange for these taxes, such as health, for example, or infrastructure, it is normal that everybody and everyone be concerned about corruption. Public money means

our money; private money means somebody else's money. Public money is our responsibility, private money is their owner's responsibility" (J, 30, female).

Most of the participants underline a key aspect related to B2B corruption. "If we consider an example of B2B corruption when an employee tries to use his position in the company for certain personal benefits, it is not a clear-cut situation. It is not the company's fault and these kinds of people are fired, if and when they are caught. No company tolerates this kind of behaviour. If there are many employees who behave like this, then we talk about a general mentality and about a social problem" (Ra, 28, male). "This is the case of Romania. Bribery is in our nature. We have been taught that steeling from the company is not a bad thing. The owner is richer than you, therefore steeling from the company is a sort of social justice" (Rb, 30, female).

On the question "how do you consider that general perceptions about corruption in Romania affect the perception on B2B relations," participants appreciated that the business environment is very much affected by the corruption in society. Some of them considered that corruption is deeply embedded in the Romanian mentality and this mentality influences behaviour in general. "If everything is touched by corruption, you will perpetuate this attitude wherever you will go: for a better job, for a wage raise, for a better deal" (L, 34, female). "In school, children are taught that a gift offered to the teacher will offer a better mark, and, therefore, they will perpetuate this attitude for their entire life" (E, 31, female). "You are hopeless when you hear that everything is corrupt in the public sector. The private sector is connected with the public sector. Therefore, I understand those who believe that the entire country [Romania] is corrupt, even if there are areas where corruption is much more limited, as the B2B sector" (I, 28, female). "The business sector in Romania is much less corrupt than the public sector, and B2B relations are fair compared to B2G relations. In our country, when you deal with the state, you have to pay a bribe. It is impossible to do business with the government without paying bribes or engaging in other forms of corruption. It is just impossible… I know what I am talking about" (L, 34, female; D, 33, male; G, 35, male; A, 30, male).

An interesting conclusion was related to examples of B2B corruption practices. Bribery was the instant answer received in all four focus groups. "Practices used by some companies in order to have a deal with another company" and "understandings between companies in order to avoid competition and control the market" were the most invoked general definitions of B2B corruption. Some of the participants offered more elaborated answers: "Sometimes it is about employees' corrupt behaviour – they ask money for something they should do anyway. In this case, you cannot blame the company. Companies, usually, fire this kind of employees. In other cases, the owner himself asks for bribes. I have an example. I had a small company on exclusive beverages and when I try to sign a contract for distribution within a private hotel in a resort in the mountains, the owner of the hotel asked me for a 'cash commission' if I want to sell my beverages in his hotel" (F, 32, male). Some participants mentioned practices used by some retailers, for example, to sell more expensive products or, sometimes, products that are very close to their best-before dates: "they [retailers] offer to employees some bonuses if they recommend some products with slow sales or with a higher price. The consumer doesn't know about the bonus the employee receives if he/she purchase this product" (R, 28, male).

However, two extreme attitudes have also been observed. Some of the participants (around 8) mix up corrupt practices with sale or merchandise techniques. This sample supported the idea that, in business, any technique has a dark side, which is unethical and can be considered a form of corruption. Another group, almost equal in size as the previous one, (7 participants) considered that anything that is covered by a contract is legal and, therefore, no corruption can be invoked: "If I have a contract with you and I mention a price for a specific product, why is

this incorrect? If you want this product in this part of the store, I tell you that you have to pay a specific price. Therefore, take it or leave it."

The second stage of the discussion involved four mini-case studies on which participants were asked to debate. Focus groups participants were asked to read the mini-case studies, to mention what kind of practice they consider these cases represent and to explain their opinion.

All participants noted some corrupt practices expressed in the mini-case studies. In all four focus groups, people noted recognizing these practices in a real-life context (A, 28, male: "have you taken this example from our company? *Laughing*).

The first mini-case study relaunched the discussion about the behaviour of employees.

Again, most of the participants restated that companies develop ethical codes for employees and punish those who try to gain benefits from their position, and, therefore, these practices should not be considered B2B corruption.

The third mini-case study also opened up interesting discussions. Many participants (more than half) considered that in business trust is an important element. Therefore, you prefer to employ or to do business with people you trust and know. They considered that this case study should not be considered a corrupt practice or an unethical one, because you prefer to deal with people you know. The fact that you have a personal relationship with your business partner brings more responsibility and accountability to the transaction, and everybody benefits from it: "do you remember, M, a few years ago, when you worked for the X company, how many times I called you to ask you to give me one or two more days to pay a check? I've always payed you when I promised. And our companies never had any difficulties because of us" (Y, 32, female). "Yes, it is about the trust you have in a person you know" (M, 32, male).

For the last mini-case study (#4), in all focus groups there were persons (around one third in each focus group) who considered this situation as an example of corruption. When these participants were asked to motivate their choice, it was clear that there is a confusion between different sales or merchandising techniques with corruption, or a sort of "conspiracy theory" ("any time you have to go through an intermediary, because there is no other choice, there are at least some unethical practices there" T, 31, male).

4. Conclusions

B2B corruption is an understudied area. Corruption itself, as a concept, does not have an unanimously accepted definition and it is mostly understood as practices that occur when public resources are involved. Furthermore, much less attention is paid to B2B corruption.

The disclosure of B2B corrupt practices is a very difficult process and there is still a heated debate about the consequences of B2B corruption.

B2B corruption in Romania is indeed barely studied and acknowledged. Corruption in the public sphere concentrates most of the attention: Romania is considered to be among most corrupt countries in the EU based on perception indexes (e.g. Transparency International's Corruption Perception Index – CPI), and people are mostly concerned about the fact that public money is spent for the personal interests of politicians or other public servants. The relationship between corruption and businesses is mostly seen from the perspective of business to government relations.

This study confirmed that young managers are aware about B2B corruption in Romania, but corruption among businesses is much less present than corruption in the public sector or in B2G relations. The overall opinion of research participants is that B2B corruption is, in fact, a consequence of the overall corruption in society. Corruption alters everything, and businesses make no exception. Participants to the study stressed the fact that a corrupt administration (governmental bodies and public services) induces mistrust in private

initiatives too, and alters the image and reputation of businesses. Because corruption has become a social problem, it is very difficult to convince the public that businesses are less corrupt than the public sector.

Compared to B2G corruption, participants consider B2B corruption not only a less studied phenomenon, but one with less negative effects on the economy. According to their statements, consumers are typically not directly affected by B2B corruption; in fact, many times B2B corruptions has consequences on specific companies, not on the general public, as when public money is involved [B2G corruption]. Among the different forms of corruption in B2B relations, the most aggressive and most damaging for the economy are understandings between companies in order to control de market. But these are rarely encountered and only large companies are involved in such practices. Bribery is the most common corrupt practice in B2B relations, but it seems that when an employee asks for a bribe it is not necessarily a form of B2B corruption. The participants underlined the fact that companies typically punish this practice and implement codes of ethics to prevent such behaviour.

From the discussion and debate on the mini-case studies, the main conclusion is that nepotism/favouritism as a corrupt practice has to have a different approach when it comes to B2B relations. In many situations (as the one described by the mini-case study presented for debate), the decisions are not about corruption or unethical practices, but about trust and responsibility. The fact that a manager prefers somebody she knows, instead of somebody she never worked with, simply means that she values trust and accountability for her company's money.

Further research avenues are possible from the starting point provided by this study.

Comparisons between domestic and foreign companies, between industries or between regions are interesting to develop. B2B relations, mostly in Romania, remain an understudied area, and this study provides several key perspectives on this topic.

REFERENCES

[1] Transparency international, how we define corruption, Available at; https://www.transparency.org/what-is-corruption#define (accessed on 25 September 2018)

[2] Shleifer, A., & Vishny, R. W. (1993). Corruption. *The quarterly journal of economics*, 108(3), pp. 599-617.

[3] Gopinath, C. (2008). Recognizing and justifying private corruption. Journal of Business Ethics, 82(3), pp. 747-754.

[4] Rose-Ackerman, S., & Palifka, B. J. (2016). *Corruption and government: Causes, consequences, and reform*. Cambridge University Press.

[5] Gardiner, J. (2017). Defining corruption. *Political Corruption* (pp. 25-40). Routledge

[6] Rose-Ackerman, S. (2007). Measuring Private Sector Corruption, Chr. Michelsen Institute, U4 Brief 2007, no. 5 [Electronic] Available: http://www.u4.no/publications/measuring-private-sector-corruption/

[7] Sööt, M. L., Johannsen, L., Pedersen, K. H., Vadi, M., & Reino, A. (2016). Private-to-private corruption: Taking business managers' risk assessment seriously when choosing anti-corruption measures. In 2016 OECD Integrity Forum

[8] EC 2017, REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL, https://ec.europa.eu/info/sites/info/files/com-2017-44_en_1.pdf

[9] Business Anti-Corruption Portal, https://www.business-anti-corruption.com/country-profiles/romania/;

[10] Transparency International (2018), Romania, https://www.transparency.org/country/ROU

[11] European Commission, Special Eurobarometer 470.

Age as Factor of Employability in Public Sector

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1. Introduction

Today the Polish labour market undergoes considerable structural changes which stem from a growing number of knowledge-based organisations accompanied by an increasing significance of employees' competences as well as a worldwide tendency of ageing of the population. This situation also requires a change of employers' approach to employee development and enhancement of life-long employability of older workers. However, this issue is often neglected in practise of human resource management (HRM) despite the fact that older employees frequently have problems to retain their employability as well as they are more likely to be exposed to job loss and long-term unemployment than younger ones.

At the same time transformation of Polish public organisations influences employment relationships and the model of lifelong employment previously characteristic of these organisations has been weakened. New concepts of public management stress the importance of human capital and the necessity of its continuous development. Requirements regarding employees of the public sector constantly increase. Today all employees of public organisations are expected to flexibly adjust to changing organisational needs through continuous learning and enhancing their employability. However, this situation poses a serious challenge for many older employees who are often ignored at developmental activities undertaken in public organisations, due to age-related stereotyping and prevalence of opinions that they are lower employable. These negative beliefs may result more from fears of employers regarding future prospects of organisational human resources than objective ratings of older workers' employability [1]. On the other hand, long-term employability of older workers can only be attained if they are provided with the necessary organisational support to learn and develop despite their age. In the context of ageing of population and changes on the labour market, premature retirement of highly employable workers of public organisations can be considered as a waste of valuable human capital. Therefore, it is important to pay attention to the issues of workers' employability and its enhancement in public organisations during their whole careers basing on the value of human capital without regard to stereotypes and prejudices on age.

Taking the above into consideration, the chapter tries to answer the following question: does the age of public organisations' workers significantly differentiate the level of their employability? This aim will be achieved by presenting the results of empirical research carried out in public organisations.

2. Employability: Theoretical Framework

At present, employability enhancement of workers has started to be perceived as an essential way to increase employment security. The notion of employability is understood in a variety of ways and there are many definitions of it. It appears in many diverse contexts,

e.g., unemployment and labour market policy, ability of graduates to get a job, evaluating job candidates, employee career development, ageing workforce, etc. These problems stem from the very concept of employability, which is a little "fuzzy" phenomenon, the sense of which has changed with time.

This term appeared in the literature at the beginning of the 20th century, gradually arousing more interest of researchers. The first studies on employability dealt with unemployment and problems of the unemployed to find a job. Until the 1970s it was mostly associated with 'employment participation' [2]. In the face of growing global competition in the 1980s and at the beginning of the 1990s, enterprises started to search for new ways to become more flexible to better fit the requirements of a dynamic environment. Employability began to be understood as an employee's "suitability" for a given job and researchers concentrated on the issue of person-job fit [3]. Interest in this concept rapidly increased at the end of the late 1990s due to growing unemployment in the European Union countries. Permanent employment contracts frequently started to be replaced with temporary contracts and flexible forms of employment [4]. Employees' career paths have become diverse and unpredictable [5]. In this situation employability has become 'new security' for workers [6].

Today, in transforming Polish public organisations the traditional life-long career is also fading. The problem of low mobility of public sector workers is often stressed.

Simultaneously, employability has started to be associated with the workers' adaptability to changing requirements of work environment [7]. From this perspective employability is understood as individual characteristics which enables workers to identify and realise opportunities for employment and career outside or inside an organisation [8]. In the new competence-based approach proposed by Van der Heijde and Van der Heijden the aspect of specific competences of workers which facilitate them to deal with the situation on external and internal labour market has been emphasised [2]. From this perspective employability is defined as "the permanently fulfilling, acquiring or creating of work through the optimal use of competencies" [2]. In these approaches' employability is interpreted as a set of specific competences, which not only determines employment but also an employee's career success and influences his/her job performance. Therefore, it enables alignment of employees' benefits with organisational interests.

3. Ageing: Labour Market and Organisational HRM Policy

Employability is an often-discussed issue in the context of the situation of older employees on internal and external labour market in Europe and North America. Demographic changes cause an inevitable growth in the number of older employees. This situation stems from a combination of ageing of the population and shrinkage of the overall workforce [9]. However, in Poland the average age of exit from the labour market is one of the lowest in the European Union, what is worrying in the context of the ongoing changes and ageing of the Polish society. At the end of the 4th quarter of 2017 persons aged over 55 constituted 18.2% of the total number of the unemployed [10]. On the other hand, also in Poland the number of older workers systematically increases, e.g. in 2017 it increased 2.2% compared to the previous year [11]. Among employees over 50, the highest decrease in the unemployment rate took place in the group of persons aged 55-59 years (30.1% in the 4th quarter of 2017) [11].

The significance of this problem is also stressed in the literature on HRM because age is one of the key criteria used by employers at developmental processes as well as other personnel processes, e.g., recruitment and selection, career management, etc. These changes should be taken into consideration in HR policy regarding age in public organisations. Many public employers reluctantly invest in professional development of older employees because of stereotypical opinions that they have lower employability than young employees as well as

due to negative evaluation of the 'pay-off' period for these investments [1]. Also, some researchers claim that age negatively influences employees' initiative and proactivity what may also decrease employability. Moreover, some studies suggest that age influences developmental activities in organisations, e.g., research conducted in Holland showed, that age significantly differentiated learning value of the job, i.e., work performed by older employees had the lowest learning value of the job, hence it limited their possibilities of professional development and employability enhancement [12].

Due to relatively high unemployment and lack of job security many older employees who are aware of their weaker position on the labour market show a strong will to maintain their attractiveness for employers and they independently take various personal initiatives to ensure their future employability. They look for possibilities to learn and acquire new skills to enhance long-term employability. Empirical research of employees over 50 proved that they willingly invest in their professional development [13]. In another study, it was showed that age does not influence the work effort but it is negatively connected with the number of rewards, which suggests that there is lack of relationships between employability and age and indicates at discrimination of older employees by employers [14]. Similarly, empirical research conducted in Holland in the private sector revealed that supervisors' ratings of employability were negatively related to the number of promotions given to older employees [1]. However, Veldhoven and Dorenbosch found a positive relationship between age and job proactivity at work, which is considered as one of the predictors of employability [9].

Therefore, the following hypothesis was formulated:

H1: Age of public organisations' employees significantly differentiates the level of their employability.

4. Research Method and Results

The survey was conducted from January to April of 2016 within the framework of a three-year research project entitled "Organisational conditions of employees' employability enhancement in the public sector"[1].

In this research the competence-based approach to employability has been adopted. Employability was measured by an instrument developed for this study which was based on the operationalisations of employability proposed by Van der Heijde and Van der Heijden as well as Marzec [2], [15].

The survey was carried out in 147 Polish public organisations. The multistage sampling method was used, i.e., at the first stage the sampling criterion was the kind of public services provided by organisations, whereas at the second and third stage the random selection method was used to select particular organisations and employees in the organisations. The sample comprised 566 employees of public organisations providing key kinds of public services in Poland, i.e., 80 employees of 14 municipal cultural centres, 80 employees of 14 public health care entities, 80 employees of 14 poviat labour offices, 80 employees of 14 municipal social welfare centres, 80 employees of 14 public primary schools, 80 employees of 44 poviat family support centres and 86 employees of 33 municipal offices. Due to the specificity of public services provided by organisations employing respondents, women constituted 81.3% (460 persons) and men 18.7% of the sample (106 persons). The average age of workers was 39.9 years (median 39 years) and the average seniority was 16.5 years (median 15 years). The sample structure according to 'educational qualification' of the respondents can be presented as follows: 61.7% of the participants held a Master's degree, 13.3% a Bachelor's degree and

[1] The project was funded from the resources of the National Science Centre (Poland) granted by the decision no. DEC-2013/11/B/HS4/00561

23.5% of the participants had secondary education. The workers with lower educational qualifications constituted only 1.6% of the sample.

In order to test the formulated hypothesis three age groups of workers were distinguished, i.e., the youngest (up to 34 years), of medium age (35-46 years) and the oldest (47 years and over). The obtained results indicate that employees generally highly rated their employability, i.e., the mean rating of employability was 5.66 on the 7-point scale (Table 1). The highest mean score was in the group of the oldest employees (mean 5.76). In the other age groups employability was slightly lower rated (mean 5.62).

Table 1. Descriptive statistics of the level of employability for employees' age groups

Age groups	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minim.	Max.
					Lower Bound	Upper Bound		
up to 34 years	181	5.62	0.64	0.05	5.53	5.71	3.29	6.95
35-46 years	238	5.62	0.63	0.04	5.54	5.70	3.51	6.94
47 years and over	147	5.76	0.60	0.05	5.67	5.86	3.88	6.88
Total	566	5.66	0.63	0.03	5.60	5.71	3.29	6.95

Because Levene's test indicated homogeneity of variance, one-way analysis of variance (ANOVA) was carried out in order to check whether age differences exist in the examined age groups. Results of ANOVA revealed significant differences of the average employability level between the examined age groups (Table 2).

Table 2. The ANOVA summary

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.27	2	1.14	2.91	0.05
Within Groups	219.74	563	0.39		
Total	222.01	565			

Therefore, to determine which age groups differ significantly from each other regarding the level of employability, in the next step post hoc multiple comparison analysis was conducted using Fisher's LSD test (test of least significant differences). Significant differences between the groups of the oldest and the youngest employees as well as between the groups of the oldest and the medium-age employees were found (at the significance level of 0.05) what confirmed the formulated hypothesis (Table 3).

Table 3. The results of LSD comparisons between the examined age groups

	(I) Age of employees	(J) Age of employees	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Lower Bound
LSD	up to 34 years	35-46 years	0.005	0.062	0.936	-0.116	0.126
		47 years and over	-0.142*	0.069	0.042	-0.278	-0.005
	35-46 years	up to 34 years	-0.005	0.062	0.936	-0.126	0.116
		47 years and over	-0.147*	0.066	0.026	-0.275	-0.018
	47 years and over	up to 34 years	0.142*	0.069	0.042	0.005	0.278
		35-46 years	0.147*	0.066	0.026	0.018	0.275

**The mean difference is significant at the 0.05 level*

5. Discussion and Conclusions

The carried-out research revealed that age of public organisations' employees is asignificant factor which differentiates the level of their employability. However, the obtained

results suggest that age does not decrease employability of public organisations' employees but quite the contrary, i.e., in the examined sample the oldest employees were characterised by a significantly higher mean level of employability than the other two age groups. It can be supposed that due to their richer job experience, this group of employees develops a higher level of specific competences determining employability which enables them to better deal with the situation on the labour market. These findings can also be explained by negative changes of attitudes and behaviours of many young employees which are reflected in their low commitment and flexibility, as well as their sometimes-excessive expectations towards potential employers. These suggestions are also confirmed be previous research conducted in the private sector [15].

Limitations of the presented research which simultaneously determine the directions of future study should be discussed. First, in the presented analysis only the impact of age on employability was analysed. Future studies should take into consideration other demographic factors which can affect employability. Moreover, the relationships between these factors and developmental activities should be examined. Also, the relationships between age and objective career success should be analysed to check how age influences rewarding policy in public organisations. However, it is important to notice that this research is the first attempt to link the issue of employability of workers with their age in the Polish public organisations.

This chapter carries some important implications for theoreticians and practitioners of management. It indicates that the actions aimed at employability enhancement provided in organisations should be adjusted to a given age group of employees. This research also proves that employers should not limit their investment in long-term employability enhancement of older employees assuming that they have lower employability and their career potential is limited, because exactly this group of workers can possess beneficial competences for organisations. Highly employable older employees who know the conditions of the public sector are a valuable asset enabling the organisations to achieve their aims. Low level of workers' employability does not only limit their chances for maintaining employment but also negatively influences organisational development. Therefore, public organisations should determine clear human resource policies regarding ageing and maintaining long term employability of all their workers.

REFERENCES

[1] Van der Heijden, B.I.J.M., De Lange, A. H., Demerouti, E., Van der Heijde, C.M. (2009). Age effects on the employability career success relationship. Journal of Vocational Behaviour 74(2), pp. 156-164.

[2] Van der Heijde, C.M., Van der Heijden, B.I.J.M. (2006). A Competence-Based and Multidimensional Operationalization and Measurement of Employability. Human Resource Management 45(3), pp. 449-476.

[3] Marzec, I., Jędrzejowicz, P., Van der Heijden, B.I.J.M., Scholarios, D., Bozionelos, N., Van der Schoot, E., Knauth, P. (2009). Specjaliści ICT w polskich małych i średnich przedsiębiorstwach (ICT Specialists in Polish Small and Medium-sized Enterprises). Zarządzanie Zasobami Ludzkimi 3-4(68-69), pp. 90-103.

[4] Marzec, I., van der Heijden, B.I.J.M. (2003). Podtrzymywanie przydatności zawodowej pracowników małych i średnich firm ICT (Maintaining Professional Usefulness of Employees of Small and Medium-sized ICT companies). Zarządzanie Zasobami Ludzkimi 5, pp. 65-75.

[5] Scholarios, D., Van der Heijden, B.I.J.M., Van der Schoot, E., Bozionelos, N., Epitropaki, O., Jedrzejowicz, P., Knauth, P., Marzec, I., Mikkelsen, A., Van der Heijde, C.M., the Indicator Study Group (2008). Employability and the psychological contract in European ICT sector SMEs. International Journal of Human Resource Management 19(6), pp. 1035-1055.

[6] Tangian, A. (2008). Is Europe Ready for Flexicurity? Empirical Evidence, Critical Remarks and a Reform Proposal. Intereconomics – Review of European Economic Policy 43(2), pp. 99-111.

[7] Fugate, M., Kinicki, A.J. (2008). A Dispositional Approach to Employability: Development of a Measure and test of Implications for Employee Reactions to Organizational Change. Journal of Occupational and Organizational Psychology 81(3), pp. 503-527.
[8] Fugate, M., Kinicki, A.J., Ashforth, B.E. (2004). Employability: A Psycho-Social Construct, its Dimensions and Applications. Journal of Vocational Behaviour 65(1), pp. 14-38.
[9] Van Veldhoven, M., Dorenbosch, L. (2008). Age, proactivity and career development. Career Development International 13(2), pp. 112-131.
[10] Main Statistical Office [GUS] (2018). Bezrobocie rejestrowane I-IV kwartał 2017 roku (Registred unemployment I-IV quarter 2017). Zakład Wyd. Statystycznych, Warszawa.
[11] Main Statistical Office [GUS] (2018). Osoby powyżej 50. roku życia na rynku pracy w latach 2016-2017 (Persons over 50 on the labour market in 2016-2017), https://stat.gov.pl/obszary-tematyczne/rynek-pracy/opracowania/osoby-powyzej-50-roku-zycia-na-rynku-pracy-w-latach-2016-2017,7,7.html
[12] Van der Heijden, B. (2001). Encouraging professional development in small and medium-sized firms. The influence of career history and job content. Career Development International 6(3), pp. 156-168.
[13] Greller, M.M. (2006). Hours invested in professional development during late career as a function of career motivation and satisfaction. Career Development International 11(6), pp. 544-559.
[14] Lobel, S.A., Clair, S.L. (1992). Effects of Family Responsibilities, Gender, and Career Identity Salience on Performance Outcomes. Academy of Management Journal 35(5), pp. 1057-1069.
[15] Marzec, I. (2015). Uwarunkowania rozwoju zatrudnialności pracowników w organizacji (Conditions of employees' employability enhancement in an organization). Uniwersytet Ekonomiczny w Katowicach, Katowice.

Full-time Vs. Part-time Workers – Case Study for CEE Countries

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1. Introduction

Contemporary labor markets are characterized by a significant segmentation of employees, although its scale and manifestations vary. The division of employees on the labor markets is based on various features, it may result from objective reasons related to the level of productivity or be a manifestation of discrimination as in the case of work of women [1, 2] or immigrants [3]. In highly regulated labor markets, employee segmentation is based on employment forms. This criterion seems to be a natural consequence of such organized labor markets. As a result, two groups of employees appear on labor markets that differ significantly from each other. Primary labor market is intended for employees based on standard full-time contracts and a secondary labor market with temporary employment and non-standard contract forms [4, 5].

The choice of employment is conditioned by general economic factors and individual characteristics of employees, i.e., their social roles and lifestyle. Despite changes in the labor markets and changes in employees' attitudes towards the value of work and leisure time, part-time employment still applies to jobs requiring low qualifications with limited access to social benefits, less job security and at the same time with lower pay levels. In the European Union, the share of part-time employment is constantly growing, changing the assessment of this group of employees, giving them features of the primary segment. However, in the countries of Central and Eastern Europe the group employed on the basis of part-time contracts is still seen as secondary.

In the context of duality labor market theory, the durability of division seems interesting.

Employees with specific characteristics once assigned to one of the segments for a long time remain there or will never leave it.

The study focused on the analysis of the characteristics of separate primary and secondary workers and the study of flows between basic groups on the labor market, i.e., unemployed, employed and inactive within separate segments referring to duality labor market theory [6, 7, 8] and models of dynamic flows on the labor market [9, 10]. Określono w ten sposób prawdopodobieństwo przejścia z jednego stanu do drugiego osobno dla primary workers i secondary workers. Thus, the probability of transition from one state to another separately for primary workers and secondary workers was determined. Numerous empirical studies [9, 10, 11] focus on determining the speed at which transitions between groups occur and explaining the factors affecting these flows. In the case of duality labor theory [6, 7, 8], it is noted that in the event of job loss, primary workers are more often transferred to the group of unemployed, while secondary workers to inactive.

The main goal of the study is to identify and evaluate the phenomenon of duality of labor markets in Central and Eastern Europe, based on the criterion of working time. The main question that was tried to be answered was: does the characteristics of full-time workers

correspond to those of primary workers in the countries studied, and whether there are significant differences between full-time and part-time employees.

Literature studies and a review of the results of empirical research allowed to formulate two research hypotheses:

H1: Full-time workers are primary workers more than part-time workers.

H2: Changes in economic activity differentiate flows on the labor market in the group of full-time and part-time employees

The spatial scope of the empirical study covers the labor markets of 7 countries that form the backbone of the Central and Eastern European group of countries, i.e. Poland, the Czech Republic, Slovakia, Hungary, Lithuania, Latvia and Estonia. To identify the phenomenon of duality in labor markets, quarterly data on the number of unemployed and employed in total and broken down into full-time and part-time workers groups were used. The source of information was the Eurostat database. The empirical study period covered the period from the first quarter of 2000 to the fourth quarter of 2019.

The study consists of the following parts. The first theoretical defines the essence of the phenomenon of duality in the labor market and its conditions in relation to the countries of Central and Eastern Europe. The comparison of features of primary workers and secondary workers was discussed, potential criteria for employee segmentation, including the criterion of working time, were pointed out. The second part characterizes the research method and information sources that were used to measure the phenomenon of dualism on the labor market in the ESW countries in the third part of the study. The last part discusses the results of the study and formulates the conclusions of the analysis.

2. Literature Review

One of the basic models relating to the theory of the division of the labor market into relatively homogeneous segments is duality labor market theory [6, 7]. The basic assumption of the model refers to the relations between the employee and the employer. According to her, the labor market is divided into two segments: primary and secondary market. Each segment contains a collection of employers and employees with specific characteristics. The basis for identifying market segments is the availability of work for job seekers, the amount of remuneration, stability of the workplace and opportunities for professional development [12, 13, 14].

The primary segment of the labor market includes attractive jobs with a high level of pay with additional benefits from work. Employees in this sector must have education and high qualifications to perform work, constitute potential for the employer. Because the employment of employees in the primary sector for an enterprise results in the necessity to incur expenditure and time for their training and development, at the same time it is required that the employees are ready to constantly improve their competences. Employers hiring employees from the primary sector should ensure their professional promotion, while employees should strive for professional and personal development. Primary employees are often required to identify with the enterprise and the work they do. Access to the primary sector is limited because jobs in this sector are offered in stable sectors that are important for the economy. Enterprises deciding to employ are guided by the desire to have a permanent, well-educated employee team. The rotation of primary workers takes place inside the segment, employees rarely leave the primary segment. In addition, there are strong trade unions operating in the primary segment that ensure that employees' rights and privileges are respected. Furthermore, to employing legal norms and regulations, both employers and employees also apply customs and generally accepted principles of social life.

Secondary market is a part of the market offering jobs described as inferior, unattractive. It provides low wages, poor working conditions without additional work-related benefits. In the secondary sector there are enterprises from the so-called coastal area of the economy, generally from the sector of small and medium-sized enterprises, their functioning is exposed to large fluctuations in the economic situation. During economic slowdowns, when the demand for goods and services decreases, they almost immediately reduce employment by adjusting the employment level to the volume of production. Enterprises treat secondary workers as a resource, they don't use their potential. Employees in the secondary sector are people with lower education or having low social competences, performing simple and repetitive work. These employees do not engage in employee matters, they do not identify with employers and their work. They are often employed under unusual contracts or part-time.

They are dismissed in the first place and, being out of work, they are more often transferred to the inactive group. In the secondary labor market, both employers and employees are wary of each other, they suspect each other of unethical actions. The role of trade unions in this sector is kept to a minimum.

The transition between primary and secondary market is difficult and involves having certain features. In the case of employees, this may include education, qualifications, in the case of enterprises, e.g., adequate capital [15]. Their absence strengthens dualism. Economic conditions play an important role in overcoming the phenomenon of duality labor market.

Good economic conditions, high and stable demand causes a natural extension of the primary labor market and easier transition of both employees and enterprises to the primary labor market.

The inclusion of employees in the primary or secondary market should result from objective reasons related to their productivity. Belonging to one of the segments has certain consequences. For secondary workers, these are low wages and employment instability. It is noted that selected groups of the population go to the secondary market more often than others.

One of the criteria for the division of employees widely discussed in the literature is the working time [5, 13, 16, 17], often among the people included in the secondary market there are people employed on the basis of non-standard contracts, including part-time contracts.

Non-standard forms of employment influence the duality of the labor market, because the use of various forms of employment shapes the position of employees on the labor market and places them in a specific segment. The first segment includes employees employed full time, indefinitely, established under labor law. Full-time work means stable employment, greater access to training and additional benefits, protection in the event of dismissal, higher pay and promotion opportunities [18, 19, 20]. The second segment consists of employees employed under part-time contracts or temporary contracts. Although the relations of employees with employers are regulated in labor law, the protection of their interests is significantly lower.

Part-time work is related to the performance of paid work for at least 1 hour in the reference week [21]. The features of this form of employment are lower pay, lack of job security, lack of opportunities for promotion and transition to full-fledged work, exclusion from employee training, lower social benefits [18, 19, 20, 22]. Empirical studies indicate that this form of employment is almost twice as often performed by women [23]. In addition, the research by Horemans and Marx [24] indicates that there is no possibility of free choice of working time, employees who decide on this form of contract have no other option. The second segment also includes employees employed on the basis of other non-standard forms of employment, including mandate contracts, specific work contracts, agency contracts, managerial contracts and self-employment [25].

Non-standard forms of employment are an important feature of the modern labor market, they are the response of enterprises to the changing conditions of their functioning. In the

downturn, the use of non-standard forms of employment is justified. It allows to reduce labor costs incurred by employers. However, these forms should not be abused in a recovery environment, because non-standard contracts have limited protection for employees and their rights, especially in terms of pay, access to social benefits and protection during layoffs, often without compensation in pay.

Conclusion of part-time contracts, term contracts or other non-standard forms for specialized positions may be associated with limited information about job candidates. If this is temporary, they can be seen as a trial period, during which the productivity of new employees and their professional competences are verified. This mechanism is a rational and often used decision – it applies to both people entering the labor market and experienced employees [26]. However, Kiersztyn's research [27] proves that in the case of simple positions, the use of non-standard contracts is a strategy of employing massively used enterprises. Permanent employment based on non-standard employment contracts can be a source of employee frustration and have negative consequences because it is not conducive to personal development and is a negative signal for future employers. It consolidates the phenomenon of dualism in the labor market. In highly developed countries with low unemployment, part-time contracts, forward contracts among selected groups of employees are the preferred form of employment [26]. Employees in good labor market conditions have the opportunity during part-time contracts to verify employment conditions in a timely manner and change jobs without additional restrictions.

Non-standard forms of employment in some countries are a relatively new phenomenon.

Their appearance on labor markets is associated with the social and economic changes of these countries, an example of such economies are the countries of Central and Eastern Europe.

The political transformation of the early 1990s revealed a number of disproportions in labor markets in the ESW economies and clearly divided the labor market into two primary and secondary labor market segments. This division coincided with the division of employees by form of employment. In these markets, the preferred form of contract for employees is a full-time, permanent contract. In the initial phase, it was treated as a temporary effect of system changes, currently the difference in the legal protection of various forms of employment is reduced, ensuring greater safety and stability of work for employees employed on the basis of non-standard forms of employment. Increasing the legal protection of all employee contracts should contribute to the free transition of employees from the secondary labor market to the primary labor market and reduce the phenomenon of labor market duality in the ESW countries. However, this process is still hampered by strong trade unions, insufficient deregulation of labor law, which makes the dual labor market in the ESW countries particularly durable [28].

3. Research Methods

The main objective of the study is to identify and evaluate the phenomenon of duality of labor markets in Central and Eastern Europe. Based on the assumptions of duality labor market theory, it was assumed that full-time workers are included in the group of primary workers, i.e., they are characterized by stable employment during demand shocks, more often they pass between the employed and the unemployed. In contrast, part-time workers should be included in the group of secondary workers whose employment is less stable during demand shocks and whose flows do not take place directly from the employed to the unemployed.

The main question to be answered was does the characteristics of full-time workers correspond to those of primary workers in the countries studied, and whether there are

significant differences between full-time and part-time employees. In particular, the assumptions were verified.

- H1: Changes in economic activity differentiate full-time and part-time employees.
- H2: Full-time workers are primary workers more than part-time workers.

The basic subject of the analysis is the study of the employment structure based on the working time criterion and their course during changes in the economic situation in selected ESW countries. Employment is subject to constant fluctuations, although these changes occur with varying intensity depending on the state of the general economic situation. Comparison of employment structures based on the working time criterion takes place by subjecting selected time series components to the number of the unemployed, total employees, full-time and part-time analysis of the relationship / synchronization of time series pairs. The strength of synchronization of the analyzed changes was tested using a classic correlation coefficient.

Flows between full-time and part-time workers were examined.

A dynamic model of the labor market, proposed, among others by Shimer [9], Elsby et al., [10], Borowczyk-Martins and Lale [11] is the starting point of the analysis of flows between groups on the labor market. The basic assumption concerns flow between the group of employed ((E_t), unemployed (U_t) and inactive (I_t). At the same time, the sum of all groups is the working-age population, and the sum of employment and unemployment corresponds to the labor force resource L_t. The net flows between the groups change according to the following equations:

$$\Delta E_t = \theta_t^{UE} U_t + \theta_t^{IE} I_t - (\theta_t^{EU} + \theta_t^{EI}) E_t$$
$$\Delta U_t = \theta_t^{EU} E_t + \theta_t^{IU} I_t - (\theta_t^{UE} + \theta_t^{UI}) U_t$$
$$\Delta I_t = \theta_t^{EI} E_t + \theta_t^{UI} U_t - (\theta_t^{IE} + \theta_t^{IU}) I_t$$

where: θ^{XY} is the flow rates between groups X and Y.

According to the assumption, changes in the number of unemployed results from net flows between the employed and the unemployed and between the unemployed and the inactive:

$$\Delta U_t = (\theta_t^{EU} E_t - \theta_t^{UE} U_t) + (\theta_t^{IU} I_t - \theta_t^{UI} U_t)$$

in a simplified form:

$$\Delta U_t = \beta_1 \Delta E_t + \beta_2 \Delta I_t$$

where: $\beta_1 \Delta E_t$ defines net inflows to the unemployed from employees; $\beta_2 \Delta I_t$ net inflows from inactive.

Thus, changes in the number of unemployed results from either net inflow from employees or inactive. If the decrease in the number of employed is greater than the increase in the number of the unemployed, it means that, taking into account the net effects of flows, some of the employed move to the group of the unemployed and some to the group of inactive. If the decrease in the number of employed equals the increase in the number of unemployed, it means that net flows occur only between these groups and are of an equivalent nature.

In the empirical study, the regression model was used to achieve this goal.

$$\Delta U_t = \beta \Delta E_t + \varepsilon_t$$

gdzie: β opisuje na ile przepływy netto przebiegają pomiędzy pracującymi a bezrobotnymi, a na ile pomiędzy pozostałymi grupami, współczynnik powinien mieścić się w przedziale (0, -1), im β bliższy -1 tym bardziej ekwiwalentny charakter mają przepływy pomiędzy pracującymi a bezrobotnymi.

Przyjmując założenie, że zatrudnienie może przyjmować postać full-time i part-time i grupy te reprezentują dwa odmienne sektory pracowników (primary and seconadry). Gdzie primary workers reprezentują pracowników zatrudnionych na full-time, a secondary worker – part-time. Zmodyfikowana formuła modelu przepływów przyjmuje wówczas postać.

$$\Delta U_t = \beta_1 \Delta E_{FT,t} + \beta_2 \Delta E_{PT,t} + \varepsilon_t$$

The advantage of the methodology used is procedural simplicity and low data requirements. The limitation results from the data used, which only allows to capture net flows between the analyzed groups.

The study used annual data on the number of unemployed and total employed persons, full-time and part-time. The source of the data was the EUROSTAT database. The raw data was decomposed using the TRAMO_SEATS procedure, thus isolating the seasonal component. Then, a cyclical component with a Hedrick-Presccot filter [29]. was composed of its course. The analysis covered labor markets of seven Central and Eastern European countries, i.e., Poland, the Czech Republic, Slovakia, Hungary, Lithuania, Latvia and Estonia.

The choice of countries partly results from the division made, among others by the International Monetary Fund [30] and OECD [31]. Because Central and Eastern Europe is a geographically, historically, politically and economically shaped area in Europe, which refers to the grouping of countries within it. The political and economic order of the ESW was established relatively recently and was the result of the Yalta dictate of 1944, and ultimately the overthrow of the communist system in Poland [32]. The political and economic structure of the community of the ESW countries is characterized by many cultural and political similarities, however, this area is still characterized by significant differences. Hence the decision to choose the research area. An additional premise is the fact that selected countries are EU members and have similar opportunities to benefit from aid funds flowing from the Community. Membership in the EU made the selected ESW countries similar in terms of the institutional environment, economic structure, directions of trade and capital exchange, because the EU's goal is to support the trend to equalize income levels among its members [33]. The assumed study time was limited by the availability of reliable and comparable data on the number of the unemployed and employed in total, full-time and part-time. For most ESW countries, this was from the first quarter of 2000 to the fourth quarter of 2019.

4. Analysis and Empirical Results

The analysis focuses on selected countries of Central and Eastern Europe, which results in a relatively homogeneous group in terms of socio-economic development with similar conditions for the functioning of labor markets. However, the basic characteristics of labor markets include the unemployment rate and employment dynamics indicate significant differences that exist between the studied labor markets, also the size of national labor markets is diversified. Poland is a market on which approx. 16 million people were employed in 2019, while the smallest labor market is the Estonian market – at the same time employment amounted to approx. 640 thousand. people. In addition, the labor markets in the analyzed are characterized by a relatively high share of the economically active population – in the ESW group in 2019, the value of the economic activity rate ranged from 70.6% in

Poland to 78.9% in Estonia. However, in countries with a relatively high rate of economic activity, both low and high unemployment rates are observed, including in the Czech Republic (unemployment rate in 2019 2.0%) and in Latvia and Lithuania (6.3% in 2019).

A common feature of all the analyzed countries is the high share of full-time workers in the group of total employees, for all the analyzed countries it was close to 90%. The highest share of full-time employees in total employment is in the labor markets of Hungary and Slovakia – in 2019, 95.8% and 95.1%, respectively, the lowest – in Estonia (88.2%). Table 1 and Figure 1 present the basic characteristics of the analyzed labor markets and trends in the share of full-time workers in total employment.

Table 1 Selected labor market statistics in Central and Eastern Europe in 2019 [%]

Countries	Unemployment rate			Employment y/y			Economic activity rate			The share of full-time workers in total employment		
	2000	2008	2019	2000	2008	2019	2000	2008	2019	2000	2008	2019
Poland	16.4	7.1	3.3	bd	103.1	100.3	66.1	63.8	70.6	90.9	92.4	94.1
Czechia	8.8	4.4	2.0	99.8	101.3	99.6	71.2	69.7	76.7	93.9	95.6	93.9
Slovakia	19.1	9.5	5.8	100.2	102.7	99.7	69.5	68.8	72.7	89.5	96.6	95.1
Hungary	6.6	7.8	3.4	101.4	99.2	100.5	59.9	61.2	72.6	87.3	95.5	95.8
Lithuania*	16.0	5.8	6.3	bd	98.3	99.9	71.2	68.4	78.0	Bd	93.5	94.0
Latvia*	14.2	7.7	6.3	bd	94.1	100.1	67.1	74.2	77.3	Bd	93.8	91.3
Estonia	13.4	5.5	4.4	bd	99.8	100.1	70.5	74.2	78.9	91.4	93.2	88.2

** 4Q2001-4Q2019*

Source: own calculations based on EUROSTAT data (31 March 2020).

The share of full-time workers in total employment is generally stable over time, only in the economies of Estonia a clear tendency to decrease this share is observed, especially after 2008. Dynamic changes in the share of full-time workers are visible in the Baltic countries: Lithuania, Loviet and Estonia, where labor markets are still subject to dynamic changes. The tendencies of the ESW economies to maintain a high share of full-time employees in total employment may result from institutional reasons, or on the side of employers or employees.

Institutional solutions in the ESW countries promote full-time employment, apply greater security to full-time employees. The historically shaped labor market is directed at the protection of employees "rights, especially in relation to full-time workers, because it was only the transformations of the 1990s that initiated the change of relations regulating employers" relationships with employees, reduction of employment overgrowth, and flexible working time. It was a period of large increases in the unemployment rate and the emergence of new phenomena on the labor markets, i.e., temporary work, employment of foreigners, or agency work, and the shaping of the remuneration policy. The structure of the economies of those countries where the public sector still holds a significant position is also important for the relationship between full-time workers and part-time workers.

In the further part of the analysis, the features of full-time structures with part-time workers will be compared and an analysis of their time course will be carried out.

Employment in the analyzed period was subject to significant short- and medium-term fluctuations, which strongly differentiated the situation of full-time workers and part-time workers. Full-time employees in all analyzed countries were characterized by slight changes both in the situation of short-term fluctuations in demand as well as those resulting from cyclical fluctuations. Both the seasonality of employment rates and cyclical components in the full-time workers group were definitely lower (Fig. 1).

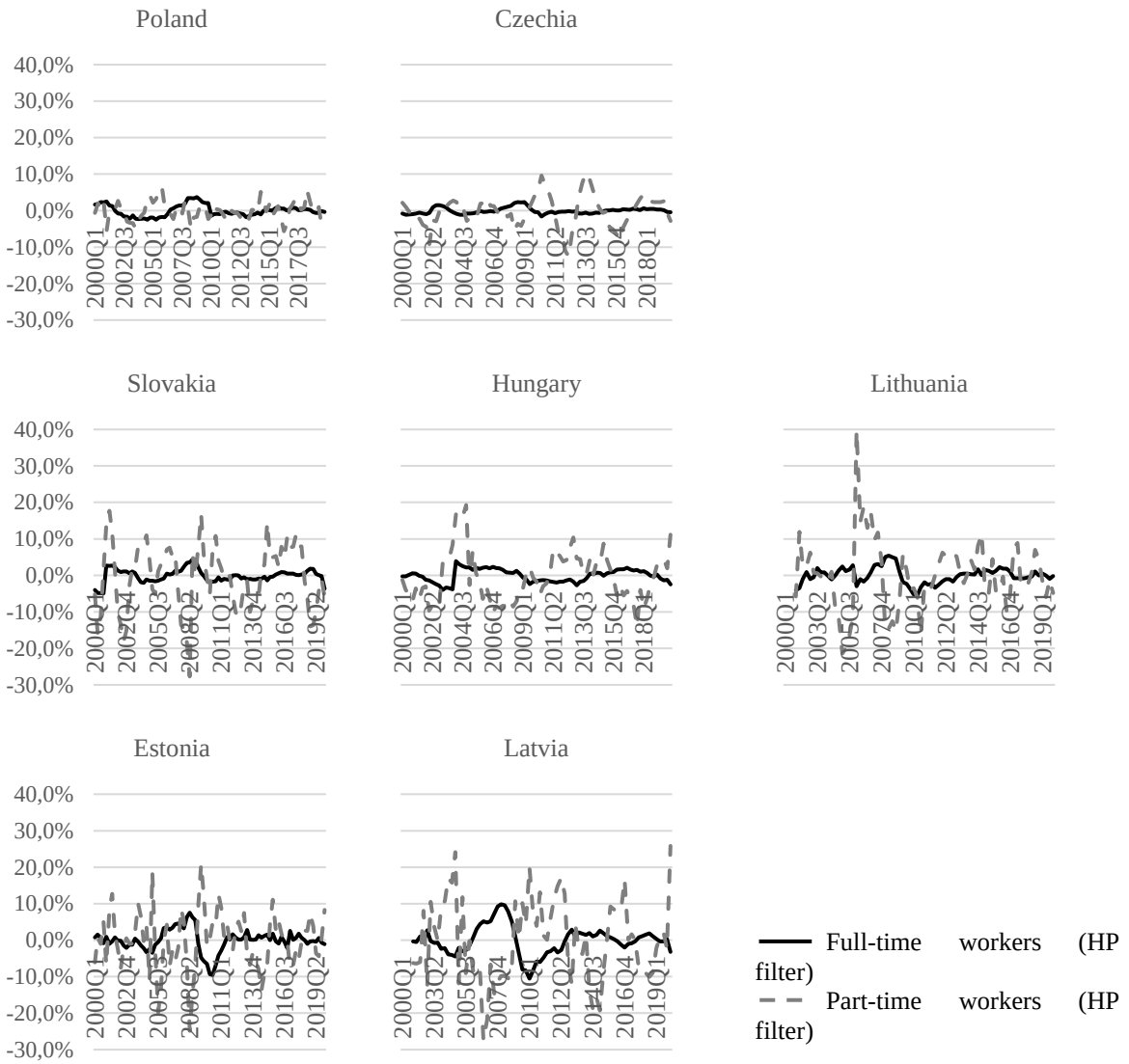

Fig. 1. Cyclical fluctuations of full-time workers and part-time workers
Source: own calculations based on EUROSTAT data (31 March 2020).

Full-time workers are a group of employees who only slightly feels changes in fluctuations in the overall economic situation, which is an important feature of the primary labor market segment. Full-time employees despite the worsening economic situation are kept in enterprises (labor hoarding). Institutional factors, both formal and informal, are the most important factors determining job storage in the ESW countries [33]. In the ESW countries, full-time employment is a historically shaped form of employment, hence restrictive legal regulations in this respect and significant protectionism of full-time employment. Employees' attachment to full-time employment in the ESW countries is significant. The strong position of trade unions also directs labor markets towards full-time employment. In the context of these considerations, part-time employees are a handicapped group on the labor market, strongly responding to changes in economic conditions, not covered by legal protection, without regulatory protection during fluctuations in demand, constituting the so-called secondary labor market.

A model of regression of flows on the labor market was used to better illustrate the phenomenon of the division of employees into primary and secondary workers based on the criterion of full-time and part-time employment on labor markets in Central and Eastern Europe. Table 2 presents the results of the estimation of the relationship model between

changes in the number of unemployed persons and changes in the number of totals employed, full-time and part-time.

Table 2. Model of flows between changes in the number of unemployed persons and changes in the number of full-time and part-time employees in the countries of CEE countries in the period of Q1 2000-Q4 2019

Countries	1Q.2000 – 4Q.2019		1Q.2000 – 4Q.2008		1Q.2009 – 4Q.2019	
	dU_t vs. $dE_{FT,t}$	dU_t vs. $dE_{PT,t}$	dU_t vs. $dE_{FT,t}$	dU_t vs. $dE_{FT,t}$	dU_t vs. $dE_{FT,t}$	dU_t vs. $dE_{FT,t}$
	Deviation from trend – HP filter					
Poland						
- β	-0.9251	0.1643	-1.0008	0.2758	-0.6850	-0.4349
	(0.0454)	(0.3171)	(0.0653)	(0.4812)	(0.0546)	(0.3372)
- R^2	0.84		0.88		0.80	
Czechia						
- β	-0.8209	0.4815	-0.8043	1.6881	-0.537	0.3317
	(0.0419)	(0.1491)	(0.0515)	(0.4663)	(0.0747)	(0.1379)
- R^2	0.84		0.90		0.75	
Slovakia						
- β	-0.5587	-0.0897	-0.4779	1.5123	-0.6580	-0.5576
	(0.0610)	(0.3089	(0.0887)	(0.7928)	(0.0691)	(0.2014)
- R^2	0.52		0.52		0.70	
Hungary						
- β	-0.1532	0.5955	-0.0045	0.3318	-0.4586	-0.1798
	(0.0356)	(0.1934)	(0.0453)	(0.2785)	(0.0358)	(0.1638
- R^2	0.31		0.04		0.84	
Lithuania*						
- β	-1.0383	-1.5330	-0.9912	-1.4471	-0.9860	-1.7337
	(0.0710)	(0.1768)	(0.1348)	(0.2621)	(0.0942)	(0.3598)
- R^2	0.76		0.68		0.77	
Latvia*						
- β	-0.6916	-0.3032	-0.5662	-0.1256	-0.8194	-0.4531
	(0.0425)	(0.0425)	(0.0586)	(0.2542)	(0.0615)	(0.2328)
- R^2	0.85		0.85		0.84	
Estonia						
- β	-0.7969	-0.2478	-0.6663	-0.0523	-0.8919	-0.3871
	(0.0401)	(0.1735)	(0.0654)	(0.2747)	(0.0512)	(0.2116)
- R^2	0.85		0.79		0.88	

** 4Q2001-4Q2019*

Source: own calculations based on EUROSTAT data (31 March 2020)

The results compared in Table 2 separately for full-time workers and part-time workers allow to state that in most of the analyzed countries the coefficient β is negative, higher for full-time workers. In addition, it is noted that the β coefficients for part-time employees are positive in many cases, i.e., in Poland, the Czech Republic, Hungary, which may indicate still undeveloped institutions regulating temporary employment and the immaturity of this market segment. This makes part-time employment similar to the group of the unemployed, pointing to the incomplete value of part-time work.

The estimation for full-time workers indicates that, as expected, the relationship between the change in the number of unemployed and changes in full-time workers was negative, although there were differences between the countries analyzed. The strongest, negative relationships were observed in Lithuania and Poland, in these countries a drop in

unemployment by 1 causes an increase in the number of full-time workers – in Lithuania by over 1, and in Poland by 0.92. Which may indicate that full-time workers almost when they lose their jobs go to the group of the unemployed, indicating their primary position on the labor market – the reaction according to the model is characterized by primary workers. The lowest estimates were observed in Hungary -0.15.

Analyzing flows in two time periods, i.e., in the period before and after the global crisis, it is noted that the strengthening of the position of full-time workers was particularly evident in the period after 2008, the only exception is the labor market in Poland. In the period 2009-2019, the value of the β coefficient for full-time employees assumed higher values, and full-time workers in this period were losing their jobs to the unemployed group more than to the inactive group. Again, the value of the β coefficient for part-time workers was positive or slightly negative for most countries (the exception was the labor market in Lithuania), but much lower than for full-time workers. This part-time worker response may indicate that they occupy a secondary position in the labor market.

5. Conclusion

Segmentation in the labor market can have various causes and manifest itself in various ways. The study divides employees into primary workers and secondary workers based on the working time criterion. Primary workers were full-time workers, and secondary workers – part-time workers. The chapter describes the features of both segments and the links between changes in the number of unemployed and changes in the number of full-time and part-time employees. Employees from the primary sector during short-term and cyclical fluctuations in production were characterized by greater employment stability than part-time employees.

Which confirmed the hypothesis that changes in economic activity differentiate the characteristics of primary workers and secondary workers. At the same time, the relationship between changes in unemployment and changes in employment for full-time workers was negative and stronger than for part-time workers, which confirmed the hypothesis that full-time workers are more primary workers. The economic cycle phase was also a factor differentiating full-time workers and part-time workers flows. During the recession, part-time employees moved to the inactive group more than full-time workers.

However, the specificity of the domestic market was significant for this relationship. The analyzes were carried out for 7 ESW countries, showing a relatively small diversity in the level of economic development, with common cultural roots and a common economic history.

In all of them in the analyzed period, although unemployment decreased at a different pace, with the level of part-time employees' participation in total employment and a slight increase in professional activity, however, this was not significant for the analyzes carried out.

The conducted analyzes confirm the privileged position of full-time employees, indicate that working time is important in segmentation in the labor market, in particular in countries with highly regulated labor relations. The limitation of the analysis is not considering the remaining non-standard forms of employee employment, i.e., civil-law contracts, managerial contracts or self-employment, nationality, which on many labor markets have a disproportionate share in underemployment. Including them could provide additional information on differences in labor market flows.

REFERENCES

[1] Albanesi, S., Şahin, A. (2018). The gender unemployment gap. *Review of Economic Dynamics*, *30*, pp. 47-67.

[2] Boston, T.D. (1990). Segmented labor markets: New evidence from a study of four race-gender groups. *ILR Review*, *44*(1), pp. 99-115.

[3] Fellini, I., Guetto, R. (2019). A "U-shaped" pattern of immigrants' occupational careers? A comparative analysis of Italy, Spain, and France. *International Migration Review*, *53*(1), pp. 26-58.

[4] Anxo, D., Fagan, C., Letablier, M. T., Perraudin, C., & Smith, M. (2007). *Part-time work in European companies: Establishment survey on working time 2004-2005* (No. halshs-00270946).

[5] Tilly, C. (1992). Dualism in part-time employment. *Industrial Relations: a Journal of Economy and Society*, *31*(2), pp. 330-347.

[6] Doeringer, P. B., Piore, M. J. (1985). *Internal labor markets and manpower analysis*.

[7] Me Sharpe, Loveridge, R., & Mok, A. L. (2012). *Theories of labour market segmentation: a critique*. Springer Science & Business Media.

[8] Hudson K., 2007, *The new labor market segmentation: Labor market dualism in the new economy*, Social Science Research, vol. 36, pp. 286-312.

[9] Shimer, R. (2012). Reassessing the ins and outs of unemployment. *Review of Economic Dynamics*, *15*(2), pp. 127-148.

[10] Elsby, M.WL., Michaels, G. and Solon, G. (2009). The ins and outs of cyclical unemployment. *American Economic Journal: Macroeconomics*, *1*(1), pp. 84-110.

[11] Borowczyk-Martins, D., Lalé, E. (2019). The ins and outs of involuntary part-time employment. *Available at SSRN 3298925*.

[12] Dickens, W. T., Lang, K. (1988). The reemergence of segmented labor market theory. *The American Economic Review*, *78*(2), pp. 129-134.

[13] Kalleberg, A. L. (2003). Flexible firms and labor market segmentation: Effects of workplace restructuring on jobs and workers. *Work and occupations*, *30*(2), pp. 154-175.

[14] Singelmann, J. (2019). *Inequality in Labor Market Areas*. Routledge.

[15] Musiał-Paczkowska, A. (2012). Segmentacja rynku pracy. *Politechnika Łódzka, Łódź*.

[16] Bentolila, S., Dolado, J. J., & Jimeno, J. F. (2012). Reforming an insider-outsider labor market: the Spanish experience. *IZA Journal of European Labor Studies*, *1*(1), p. 4.

[17] Hudson, K., Kalleberg, A. L. (2019). How good is half a job? Part-time employment and job quality in the US. *Dualisation of Part-Time Work: The Development of Labour Market Insiders and Outsiders*, p. 187.

[18] Forrier, A., Sels, L. (2003). Temporary employment and employability: Training opportunities and efforts of temporary and permanent employees in Belgium. *Work, employment and society*, *17*(4), pp. 641-666.

[19] Ermisch, J. F., Wright, R. E. (1993). Wage offers and full-time and part-time employment by British women. *Journal of Human Resources*, pp. 111-133.

[20] Thorsteinson, T. J. (2003). Job attitudes of part-time vs. full-time workers: A meta-analytic review. *Journal of Occupational and Organizational Psychology*, *76*(2), pp. 151-177.

[21] Eurostat (2020). Labour market and household statistics, Statitics Explained, May 2020.

[22] European Parliament, 2016, *Precarious Employment in Europe Part 1: Patterns, Trends and Policy Strategy*, Study for the EMPL Committee, IP/A/EMPL/2014-14, PE 587.285.

[23] Agarwal, B. (1997). Bargaining and gender relations: Within and beyond the household. *Feminist Economics*, 3(1), pp. 1-51.

[24] Horemans, J., & Marx, I. (2013). Should we care about part-time work from a poverty perspective? An analysis of the EU15 countries. In *Non-Standard Employment in Europe* (pp. 169-189). Palgrave Macmillan, London.

[25] De la Porte, C., Emmenegger, P. (2017). The Court of Justice of the European Union and fixed-term work: Putting a brake on labour market dualization? *Journal of European social policy*, *27*(3), pp. 295-310.

[26] Nunez, I., Livanos, I. (2015). Temps "by choice"? An investigation of the reasons behind temporary employment among young workers in Europe. *Journal of Labor Research*, *36* (1), pp. 44-66.
[27] Kiersztyn, A. (2016). Fixed-term employment and occupational position in Poland: The heterogeneity of temporary jobs. *European Sociological Review*, *32*(6), pp. 881-894.
[28] da Silva, A. D., & Turrini, A. (2015). *Precarious and less well-paid? Wage differences between permanent and fixed-term contracts across the EU countries* (No. 544). Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.
[29] Hodrick, R.J., Prescott, E.C. (1997). Postwar U.S. Business Cycles: An Empirical Investigation. Journal of Money, Credit and Banking, 29(1), pp. 1-16.
[30] IMF. (2016). Central, Estern, and Southeastern Europe. How tu Get Back on the Fast Track. *Regional Economic Issues*. May 2016.
[31] OECD (2001). Agricultural Policies in OECD Countries: Monitoring and Evaluation 2000: Glossary of Agricultural Policy Terms, OECD.
[32] Winnicki, Z. J. (2017). Europa Środkowa czy Europa Środkowo-Wschodnia? Europejskie kręgi cywilizacyjne. *Wschodnioznawstwo*, (11), pp. 11-20.
[33] Smętkowski, M. (2015). Konwergencja gospodarcza i formy dyfuzji rozwoju w krajach Europy Środkowo-Wschodniej. *Roczniki Ekonomiczne Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy*, (8), pp. 324-338.
[34] Radlińska, K., Klonowska-Matynia, M., Jakubowska, A., & Kwiatkowski, G. (2020). Labor hoarding: an old phenomenon in modern times? Case study for EU countries. *Journal of Business Economics and Management, 21*(3), pp. 872-889.

Supporting Gender Parity in Management Boards of Polish Companies in Context of Current Requirements of Market Economy

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Keywords: Manager, gender, market economy

1. Introduction

According to the Radford Perspectives Report 2017 pay equality, fairness, transparency, elimination of racial and gender differences has become one of the most crucial issues for business leaders, workers, governments and for the whole world [1].

The authors of the report 'Równość kobiet i mężczyzn w procesach podejmowania decyzji ekonomicznych – narzędziem zmiany społecznej' [Equality of women and men in the process of making economic decisions – a tool for social changes] [2] emphasised that the majority of research findings explicitly show a connection between gender diversity and companies' economic results – the more women in the boards of directors and the more diverse teams are, the better results are achieved. At the level of companies, the research findings clearly showed a positive correlation between the number of women in the companies' boards and financial results, whereas, in case of listed companies, the said correlation occurs between the number of women and companies' market valuation. The correlation between the representation of women in companies' boards and their financial results was also confirmed by international McKinsey research studies carried out in 2017 [3] and in 2010 [4], where it was proved that in companies with the highest representation of women in the management boards there was a 41% increase in ROE and 56% increase in operating profitability.

The nurturing of diversity results in attracting talented individuals, mainly women, as they form a considerable group (a half of each society) of undiscovered talents, including managerial ones. One feature of the diversity-oriented organisational culture is to adhere to the binding laws as to equal treatment in the workplace and connections between interested parties. Another feature of the said culture is a wide promotion of values, norms and customs, which results in the creation of such an atmosphere where differences are accepted and appreciated, instead of being barely tolerated [5].

The aim of the chapter is to analyse the status of women in the Polish market economy and indicate arguments favouring the employment support programmes for women, combined with a conscious use of gender diversity, perceived as one of organisational values.

2. Status of Female Managers in the Polish National Economy

The Millward Brown's Study Report, published in March 2017, was commissioned by Grant Thornton International [6]. The study covered 10.000 owners and managers of medium-size and large companies in 33 countries. It was found out that despite a considerable contribution of women in the general category of senior managers, there are still few women

holding the highest positions in Polish companies – only 8% of presidents of the boards are women.

Another report, commissioned by the Ministry of Labour and Social Policy within the scope of the project 'Równość kobiet i mężczyzn w procesach podejmowania decyzji ekonomicznych – narzędziem zmiany społecznej' [Equality of women and men in the process of making economic decisions – a tool for social changes] [2], underlines that the biggest Polish companies, i.e., the companies listed on the stock exchange, including state-owned enterprises, have less than 15% of women in board of directors and supervisory boards, whereas around 7% of women hold the posts of presidents of the boards.

The study carried out by the author among 228 respondents coming from Polish companies showed some relatively ambiguous opinions as to women holding the top managerial positions and performing, at the same time, their family-related roles. The study, aimed at determining how female managers are perceived, was carried out over 2013-2016.

Over a half of respondents (52%) are convinced that women should not hold managerial positions in companies due to their insufficient mobility caused by family-related constraints.

However, as to the lack of mobility caused by pregnancies and maternity leaves, as many as 71% of respondents claim that these factors do not disqualify women from performing managerial duties.

Furthermore, the low representation of women among senior managers was confirmed in the report elaborated by McKinsey & Company entitled 'The power of parity: Advancing women's equality?' [3]. The report findings show that there are mere 6% of female managers among presidents of the largest companies being subject to the study, whereas there is but a 13% representation of women in boards of directors. What is more, in as many as 63% of researched companies there are no women in the boards of directors.

One should not cease to pursue actions aimed at reinforcing the women's entrepreneurial spirit, enhancing their representation in management and supervisory boards, and establishing a firm and responsible pro-family policy which does not exclude working mothers from the labour market. Thus, the companies and the state, by means of its social and economic policy, should take necessary steps.

3. Methods Supporting Gender Parties in Companies

Nowadays more and more companies have been introducing various types of internal regulations in order to ensure that women get favourable working conditions.

The solutions implemented by companies, designed to improve the women's employability at managerial levels, require, among others [7, 3]:

Allowing employees to work flexible hours:

- Opportunity to adjust working hours to childcare duties,
- Opportunity to reduce the pressure and obligation to be fully available at work, experienced by women,
- Companies let employees perform some work-related duties from home (a necessity to adjust to the more and more frequent use of modern communication technologies, remote access to the company's resources and electronic document workflow);

Implementing various women's professional development programmes on a wider scale:

- Providing training courses on interpersonal and leadership skills, being of key importance during business negotiations, while solving problems or managing teams in emergency situations,

- Programmes of subsidised business education (e.g., postgraduate programmes, MBA programmes, scholarships, etc.),
- Structured programmes of mentoring – each woman, even the one holding the lowest managerial position is assigned with a mentor, i.e., a more experienced manager (during regular mentoring sessions, the mentor assists his/her mentoree in defining career paths, identifying strengths as well as needs and ambitions related to the professional development);

Changing the companies' organisational structure in such a way as to promote various management styles:

- promoting and appreciating various management styles owing to a clearly defined system of staff assessment and promotion, which system shall inhibit any biases,
- taking into consideration criteria reflecting various management styles, e.g., indicators that assess whether a manager takes care of his/her employees' professional development and their work environment (effective staff evaluation tools, a 360-degree feedback form filled in by superiors, peer-workers, subordinates, clients and the workers themselves – this approach allows to assess employees in a comprehensive and measurable way, with a consideration given to the so-called soft skills and various management styles),
- introducing, into the organisational culture, the diversity idea (leaders setting examples at each level of communication with employees, creating a heterogenous organisation by implementing the diversity in the companies' goals, fulfilling specific indicators of diversity, which indicators are published and simultaneously communicated, with an emphasis given to the most considerable obstacles),
- training courses on subconscious prejudices for all managers,
- promoting the women who were successful in a given company.

A report entitled 'Polski biznes silny kobietami' [8] shows that Polish employers have been trying to help women find balance between their jobs and maternity – 80% of companies have relevant regulations which allow to work part-time, whereas 78% of companies have regulations that allow for flexible work hours. Poland does not differ much from the average result in the EU, where the indicators are 85% and 77% accordingly (54% worldwide and 57% of companies).

Another form (preferred by Polish companies) of supporting the gender parity is to guarantee, by means of special regulations, equal pay for the same jobs – 70% of respondents confirmed to have such regulations at their disposal. This solution is the most favoured method of supporting women in the entire EU and the world – the average for the EU is 88%, while for the rest of the world, it amounts to 81%.

Experiences of companies with the highest representation of women in their management boards indicate that any improvements take a few years of consistent actions. The majority of such companies name the staff diversity as one of five most important organisational goals and establish comprehensive programmes of modifying management culture and practices [9].

It transpires, from the report entitled 'Równość kobiet i mężczyzn w procesach podejmowania decyzji ekonomicznych – narzędziem zmiany społecznej' [2], that in order to increase the representation of women in senior management positions, there have been applied, more often than not, soft recommendation or binding solutions. In Poland, these are, for example, recommendations contained in the Best Practices at the Stock Exchange (the practices advocate a balanced representation of women and men in management and supervisory bodies of the companies, as well as presenting annual reports on the representations of men and women in the said entities) as well as recommendations by the Ministry of Treasury applicable for the state-owned companies (30% of women in

supervisory boards). The report authors claim that, on the basis of experiences from Poland and other countries, one may conclude that sheer encouragements and soft recommendations have not sufficed – more effective are biding regulations, with ensuing sanctions. The research studies show that the greater representation of female managers in companies is getting more and more acceptable; equally more acceptable are activities that would facilitate this process. However, an attention was drawn to the fact that the entire society is more willing to support the increased representation of women in companies' management bodies than business people and managers. The report authors claim that the effectiveness of legal regulations should be enhanced and improved – i.e., they should have greater binding force, e.g., there might be quotas related to requested proportions of the representation of women and men in companies' authorities. State-owned companies and large listed companies ought to be the area of economy which should, in the first place, set an example of the best practices as to the equality between women and men and where parity quotas should be introduced.

The report showed the necessity to introduce transparent and relevant criteria into the systems of recruiting employees for the companies' management bodies. The following document underlines that, apart from necessary legal regulations, one should create a comprehensive "eco-system" favouring the development of women's careers as well as enhancing the companies' corporate culture. What is more, Ms Małgorzata Marcińska, the Vice-Minister of Labour, announced further steps – namely meetings with representative of the business, analyses showing that the parity pays off and a nationwide social campaign related to the subject, to name just a few.

In Poland, some solutions at the level of social and economic policy have been introduced so far. The said solutions allow to combine work with family-related duties. They are as follows: opportunity to combine one's parental leave with part-time jobs (Art. 1821d. § 1., Art. 1821e. § 1. – Journal of Laws as of 2015 item 1268) Art. 1 point 9 of the Act of 24 July 2015 on the amendments to the Act – Labour Code and some other Acts) [10], the state budget will cover social insurance contribution on behalf of nannies (Regulations of ZUS [Social Insurance Institution] in force as of 01.01.2018) [10, 11, 12].

Furthermore, the authors of the McKinsey & Company Report [7] indicate that a wider access to care institutions and extension of their services, e.g., by means of subsidising nurseries and primary schools, would be equally important. The above-mentioned initiative would allow a greater number of parents to resume their jobs, combined with a simultaneous creation of more jobs in schools and social care institutions, which would consequently trigger a well-known phenomenon in the economics, i.e., the employment multiplier.

4. Conclusions

Macro-economic advantages and an opportunity to improve companies' results are arguments for pursuing actions destined to support the employment of women and assist women in the development of their professional careers.

The women's employment support policy shall exert a profound impact on the pace of the country's economic development. Due to demographic challenges – a drop in the population aged 15-64 (by 2.3 million until 2025 [13]) and a considerable economic migration of young Poles – there is a dynamic decrease in the labour supply. The estimates by McKinsey, based on the McKinsey Global Institute Model, have shown that thanks to the intense activities of women in the labour market and a growth in average productivity of women, the cumulative GDP in Poland is likely to have increased by an additional 7% (PLN 1.3 trillion) by 2025. In 2025 alone, the Polish economy will be able to gain additional PLN 270 billion over the basis scenario, i.e., by 11% more [7].

Since there is no doubt that the use of women's potential would result in tangible results for organisations, one should but hope that gender disproportion would be erased faster than what is said in the World Economic Forum's Report. Authors of the Report have anticipated that the economic parity between the sexes could take 170 years, i.e., in 2186 [14].

One cannot undoubtedly conclude that the greater contribution of women in the companies' boards of managers would heal national economies. However, it needs to be emphasised that the diversity which women certainly contribute to the management may be a determinant of success for organisations.

REFERENCES

[1] https://radford.aon.com/sites/Perspectives/2017/Radford_2017_Perspectives_Report.pdf, s. 14, access 06.11.2018.

[2] https://www.newsweek.pl/biznes/kobiety-zajmuja-tylko-7-proc-stanowisk-prezesowskich-newsweekpl/k14z077, 24.02.2018.

[3] Sekcja specjalna. Materiał promocyjny (April 2017). Szersza perspektywa dzięki różnorodności. Harvard Business Review Polska, p. S6, S8.

[4] McKinsey Company (2010). Woman at the top of corporations: Making it happen.

[5] Wojciechowicz, M. (2015). Korzyści z wzmacniania różnorodności płci w wymiarze ekonomicznym [in:] Zeszyty Naukowe Uniwersytetu Szczecińskiego, nr 855, Finanse, Rynki Finansowe, Ubezpieczenia, nr 74, t. 2, p. 711.

[6] https://forsal.pl/artykuly/1109701,raport-34-proc-wyzszej-kadry-kierowniczej-polskich-firm-to-kobiety.html, 08.03.2018.

[7] Raport McKinsey&Company (2017). Potęga równości. Jak i dlaczego warto wspierać kobiety w karierze zawodowej? pp. 23-25, 30.

[8] https://www.pap.pl/aktualnosci/news%2C1319872%2Craport-34-proc-wyzszej-kadry-kierowniczej-polskich-firm-stanowia-kobiety.html, 05.10.2018.

[9] Women Matter 2016 (2016). Reinventing the workplace to unlock the potential of gender diversity. McKinsey & Company.

[10] prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU20150001268/T/D20151268L.pdf, access 07.11.2018.

[11] http://www.zus.pl/pracujacy/nianie/ubezpieczenie-nian-kompendium, access 08.11.2018.

[12] http://www.zus.pl/pracujacy/nianie/nianie-krok-po-kroku, 30.11.2017.

[13] Difference between a number of populations aged 15-64 as per 2015 and as per 2025. Population projections for the years 2014-2050. Główny Urząd Statystyczny, 2014.

[14] Słowik, J. (2017). Wszechstronne liderki. Harvard Business Review Polska, grudzień 2016-styczeń 2017, p. R6.

Housing Conditions from Perspective of Potential Clients of Real Estate Market Entities

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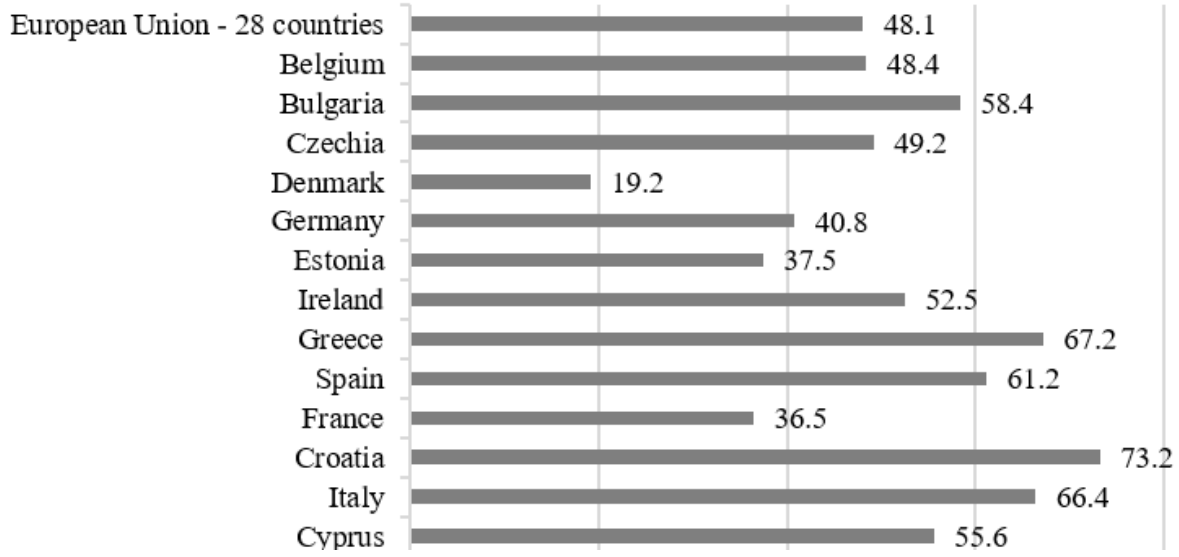
1. Introduction

At present, many reports and articles on popular science are devoted to the housing situation of young people. These texts emphasize the increasingly late age of leaving family homes or living with parents of the generation of the present thirty-year-olds. The interested parties themselves point out that it is a "challenge" for them to live with their parents while being over thirty, and there are discussions in the forums about how old a person is to become too old to live in their family home. According to Eurostat data (Fig. 1), in the entire European Union almost half of people aged 18-34 live with their parents.

Analysing the data shown in Fig. 1, it should be noted that the housing situation of young people varies significantly between particular countries of the European Union. The smallest percentage of young people living with parents is definitely found in Scandinavian countries (Finland, Denmark, Sweden). In addition, the percentage of young people staying in family homes below the EU average is found in: Germany, France, Netherlands, Austria, United Kingdom and Estonia. The highest percentage of people aged 18-34 living with parents occurs in: Croatia, Slovakia, Malta, Greece and Italy.

The reasons for young adults to live in the family home are indicated as follows, among others: prolonged education process, difficulties in taking up work, instability of employment and well-paid jobs, but also a strong family bond (e.g., [1], [2]).



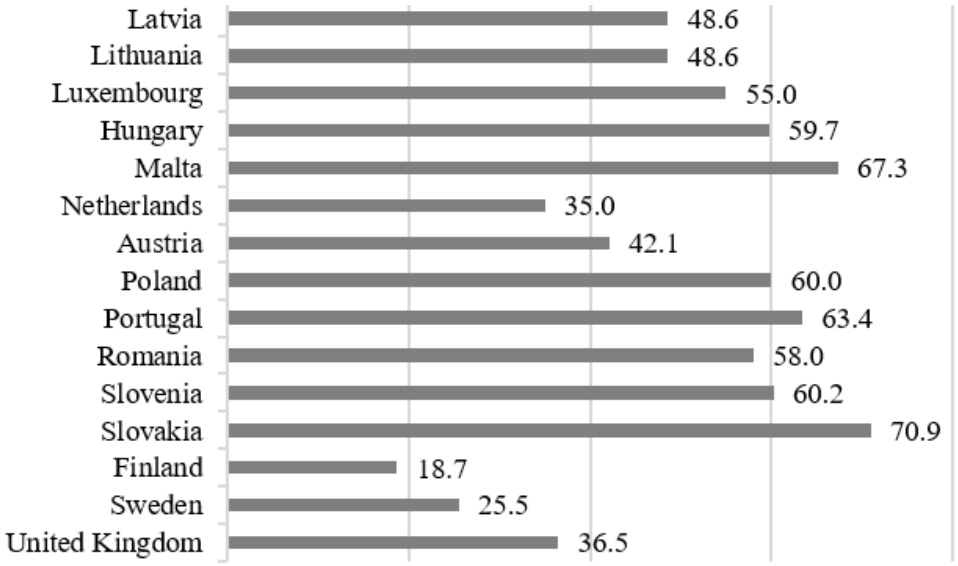


Fig. 1. Percentage of people aged 18-34 living with their parents according to data for 2017
Source: Own analysis base on the Eurostat data
http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_lvps08&lang=en [20.02.2019]

2. Methods

The subject of the research in this chapter are the opinions of potential clients of entities operating on the residential real estate market on their current housing situation and housing plans when they are about 30 years old.

The cognitive goal of the research was to provide knowledge about the housing conditions of young adults. The pragmatic goal is to formulate conclusions, in particular for enterprises operating on the residential real estate market, and as a result, to build a competitive advantage on the market.

For the needs of the conducted research, the following questions have been formulated:

What is the current housing situation of potential buyers on the real estate market?

What housing plans do people in the age of 18-30 have?

The research method that was used for the needs of the conducted research was a diagnostic survey. The research was carried out on 7-8 May, 2018 in Barcelona and on June 12-16, 2018 in Bialystok. The respondents were asked to fill in the questionnaire anonymously. The analysed research sample amounted to 316 people, of which:

219 people were students of Faculty of Engineering Management at Bialystok University of Technology;

37 people – foreign students at the Faculty of Engineering Management at Bialystok University of Technology;

60 people – students of Escola Universitaria Salesiana de Sarria Universitat Autonoma de Barcelona (EUSS).

University of Technology included students of the Erasmus+ program, originally from Turkey, France, Portugal and graduate students as part of the project entitled Logistics and management – international graduate programs at the Faculty of Management of the Białystok University of Technology (LogMan2), originating, inter alia, from China, Kazakhstan, Kyrgyzstan, Uzbekistan, Ukraine, Belarus, Algeria, Ghana, Bhutan, Zimbabwe and India.

3. Results

The results of the research presented in Fig. 2 indicate that the largest share of people living with parents is among students of the Escola Universitaria Salesiana de Sarria Universitat Autonoma de Barcelona and amounts to over 86 percent. Only 5 percent of the respondents from this university live in their own apartments, and less than 7 percent rent a flat or segment in a student's home. As indicated by the respondents, such a situation is the result of a high rent for rented housing and high costs of living in the city. In the case of the foreign students at the Faculty of Management of Bialystok University of Technology, the form of renting a flat or a segment in the student's home was clearly dominant. It resulted mainly from moving from another country for the duration of the studies. The percentage of students of the Faculty of Engineering Management at the Bialystok University of Technology living with the parents and renting of a flat/segment in a student's home was fairly evenly distributed. This is mainly due to the fact that a significantly large group of students come from other towns in the province and move to Bialystok to study. It should also be noted that in the group of students of Faculty of Engineering Management at Bialystok University of Technology, there is the highest share of people with their own housing – about 16 percent.

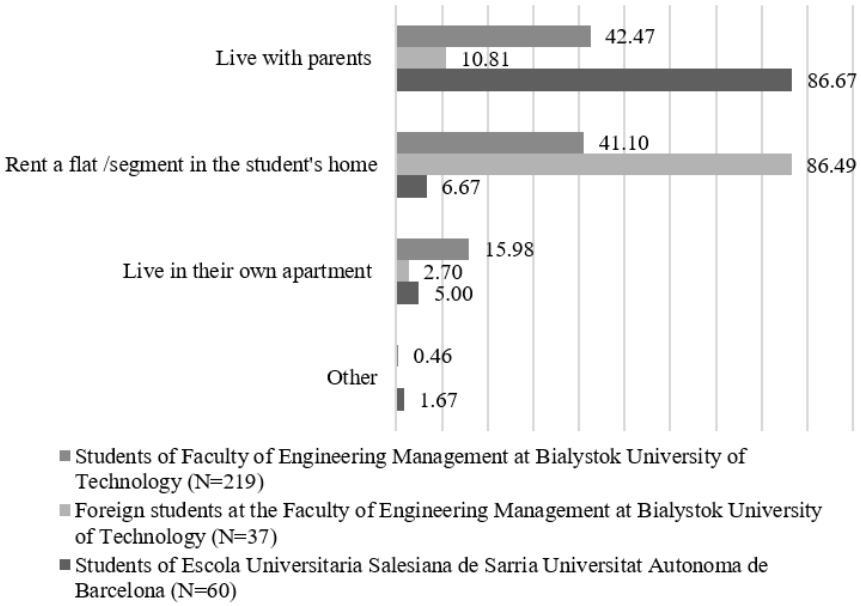


Fig. 2. The housing situation of the respondents [in percent]
Source: Own study based on the results of empirical research

The respondents were also asked to indicate how they imagine their housing situation when they are about 30 years old. The results are presented in Fig. 3. The respondents have shown to have plans which are much more optimistic than the current housing situation, or the data presented by Eurostat for the whole population.

All three groups of students surveyed indicate a willingness to become significantly independent from their parents. None of the students of Escola Universitaria Salesiana de Sarria Universitat Autonoma de Barcelona indicated that at the age of 30, they would live with their parents, almost 47 percent indicated that they would rent a flat, every sixth respondent was of the opinion that they would buy a new flat, and 15 percent that they would build a house. Among the foreign students at the Faculty of Engineering at Bialystok University of Technology, the majority of respondents (over 48 percent) indicated the

purchase of a new flat, less than 19 percent are of the opinion that they would rent a flat, and almost 11 percent expressed the opinion that they would build a house. Among the surveyed students at the Faculty of Engineering Management at Bialystok University of Technology over 30 percent indicated that they would buy a new flat, and 11 percent a flat on the secondary market. Every fourth respondent plans to build a house.

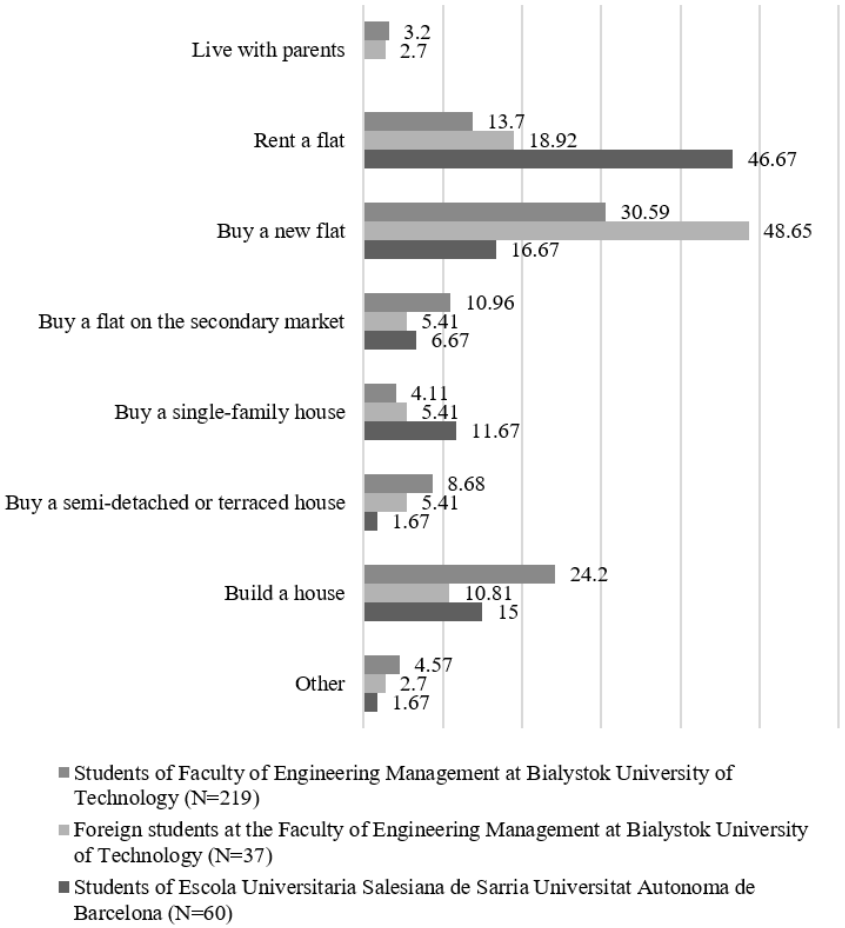


Fig. 3. Housing plans of the respondents [in percent]
Source: Own study based on the results of empirical research

4. Conclusions

The results of the conducted research confirm that only a small percentage of young adults live in their own flat. Nevertheless, their housing plans do not confirm that, being around the age of 30, they plan to remain in a family home. Although there are differences between the analysed groups in relation to housing plans, however, from the perspective of the development of the housing market, this does not mean the lack of potential clients. It does point out to the fact that while the form of renting apartments is predominant on the market in Barcelona, in Bialystok, the development industry has a chance to grow constantly, along with construction companies offering single-family houses.

At the same time, it should be emphasized that the presented results indicate only the current state and plans for the future of potential buyers of real estate market entities, not the reasons for the state of affairs for which, due to its volume, there are separate publications by the author.

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REFERENCES

[1] Piszczatowska-Oleksiewicz, M. (2014). Polscy gniazdownicy. O powodach, dla których dorosłe dzieci mieszkają z rodzicami. *Pogranicze. Studia Społeczne*s, t. XXIV, s. pp. 181-207.

[2] Walter, A. (2006). Regimes of youth transitions: Choice, flexibility and security in young people's experiences across different European contexts. YOUNG, 14(2), pp. 119-139.

Correlation between Women Empowerment and Development

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1. Introduction

Empowerment has been acknowledged as one of the essential components leading to poverty reduction as well as a vital element in achieving development goals. Also, equally as essential to the attainment of development goals is gender mainstreaming, which employs strategies and policies that promote gender equality as the ultimate outcome.

A report by the World Bank [2, p. 4] indicates that "Gender refers to socially constructed norms and ideologies which determine behaviour and actions of men and women". Gender mainstreaming is not just crucial for attaining social justice but also for achieving various social and economic goals on the road of accomplishing economic development in its true sense. This clarifies strategies and actions that need to be adopted in order to construct an environment that is receptive to gender equality. Therefore, ensuring the effective involvement of both men and women in the process of development guarantee the benefit of both from the outcomes. Attaining gender equality is empirical to promoting women empowerment and hence development. This is since women empowerment entails the capability to control one's life, which necessitates enhancing social, economic and political empowerment [3].

The chapter offers, in the first part, a short description of what the women empowerment means and what it involves as a process. In the second part, a perspective on the relation between women empowerment and the development process will be provided.

2. Women Empowerment Process

Subsequent to the introduction of gender parity apprehensions in the 'mainstream' of development strategies, several efforts have been exerted to hypothesize women empowerment. In this sense, women empowerment has been demarcated as "the processes through which women gained the capacity for exercising strategic forms of agency in relation to their own lives as well as in relation to the larger structures of constraint that positioned them as subordinate to men" [4]. As such, better insight is attempted towards the understanding of "women's sense of self-worth and social identity; their willingness and ability to question their subordinate status; their capacity to exercise strategic control over their own lives and their capability to renegotiate their relationships with others who matter to them; and their ability to participate on equal terms with men in reshaping the societies in which they live" [5, p. 27].

The UN defines women empowerment in light of five constituents; women's perception of self-worth; their right to make choices; their right to have access to opportunities and resources; their right to govern their own lives, both inside and outside their households; and

finally, the capability to impact the social transformation towards an unbiased social and economic environment, nationally and internationally [4].

Options, choice, control, and power are concepts that are most commonly used when describing empowerment to indicate the degree to which women are able to be in control of their own lives as well as whatever resources available to them. And to make 'strategic life choices' with impact on themselves and on their families. Equally as important is the concept of 'inner transformation'. The named concept stipulates that women not only should be able to make choices but should feel fully entitled to do so [6].

As previously mentioned, women empowerment is more and more perceived as a process.

The notion of empowerment can be explained by means of three diligently correlated elements: agency, resources, and achievement. Agency signifies the progressions via which choices are made and placed in action, therefore it is at the core of empowerment. Resources are the 'medium' allowing agency to materialize and achievements exemplifies the consequences or the product of agency [7]. This is while factors – like education, paid employment and political participation – that are usually referred to as means of empowerment are merely acknowledged as 'enabling factors' [1].

As such – lately – there have been several efforts to view empowerment as a dynamic process rather than an end result. In this sense resources are no longer perceived as empowerment – in itself – but rather as a facilitator or a condition allowing for empowerment to occur. Likewise, also what Kabeer categorizes as 'achievements' and Longwe as 'welfare' is no longer perceived as empowerment – in itself – but rather as outcomes of the process.

Therefore, political participation, legal reforms and economic well-being should all be appreciated as outcomes of the process and not to be confused with empowerment.

The above explains distinguishing agency as the core of the empowerment process and development at large. This is since it involves the capability to articulate tactical choices, manage resources and make decisions that are apt to impact vital life outcomes [1].

Nevertheless, labelling agency as the core of women empowerment does not mean that the entire load of advancing in women's status rests on their shoulders solely nor should it be the obligation of individual women. On the contrary, a vital need exists for governments and specialized organizations to endorse strategies that enforce gender equality through social, political as well as legal reforms. In this sense, both national and international associations have a duty towards marginalized groups – women being one of them – to foster greater integration of these groups socially, politically, and economically.

3. The Correlation between Women Empowerment and Economic Development

The Convention on the Elimination of Discrimination against Women in 1979 stipulated that, "the full and complete development of a country, the welfare of the world and the cause of peace require the maximum participation of women on equal terms with men in all fields" [8]. However, the importance of gender equality in attaining women empowerment –and hence development – can only be explained in a socio-cultural as well as political and economic context. Gender injustice practiced in a given society become the status quo or 'natural' as Kabeer label it. Consequently, women tend to adopt and cope with their inferior status and start perceiving themselves as subordinate individuals of lesser worth.

Subsequently, they lose sight of their human as well as civil rights leading them to making 'choices' that further assert their subsidiary standing in the society [1].

It is, therefore, essential for women to be regarded and addressed as equal citizens with all consequent rights and responsibilities. Meaning that, both men and women should enjoy equal rights with regards to health, education, nutrition, access to economic resources, political participation, and safety from all forms of violence and oppression. Attaining gender parity

entails improvements in all these aspects, ending all types of discrimination against women and securing their access to all the mentioned essential human and civil rights [3].

An evident correlation exists between women empowerment and economic development; on one hand, women empowerment can accelerate the development process. On another hand, development – in itself – is known to reduce gender parity and hence empower women. In contrast, women in developing countries are treated with way less equality as they find themselves occupying the back rows behind men in most realms. Consequently, women who are citizens of less developed countries struggle to have the education, get the job opportunities, or gain the civil and political participation rights that they would have readily have access to as men or as women in more developed countries.

A closer look shows that a 'bidirectional relationship' exists between economic development and women empowerment. Women empowerment – by definition – is enabling women to better access the components of development, namely; health, education, earning prospects, legal rights, and political participation – the reality, however, falls far behind these goals. In 2011, Berniell and Sánchez-Páramo indicated that in earning prospects, women have a lesser chance to have formal job opportunities [9]. They usually earn less than men for doing the same work, and even when working, they are more apt to be in poverty as the bulk of their time is tied up in housework and childcare. Also, in the same year the Inter-Parliamentary Union declared that as far as political representation is concerned, women's share of parliaments seats has not exceeded 19.4% [9].

Additionally, regarding legal rights, women in numerous countries are still denied land ownership right, property management rights, right to own or run a business and in some countries even banned from the right to travel without a husband's consent. In a study by Htun and Weldon [9] out of sixty-three countries studied, twenty-one countries have been found to have different inheritance rights based on gender. Such persistent discrimination against women, therefore, deters development while empowerment tends to have an accelerating effect on it.

To what extent, however, can we claim that women empowerment can aid the development process? Numerous indications show that reducing the gap on gender inequality and empowering women through securing their fundamental civil rights – especially regarding education, paid employment opportunities, healthcare and political participation – yields benefits that extend beyond the recipient women. This is as it tends to positively impact their families and society, which is the rationale behind directing micro-credit schemes mostly to women rather than men. This is as evidence shows that when micro-credit financing is made available to women – especially in rural and marginalized areas –, they tend to invest in goods that improve the welfare of their children and families. This is through enrolling their children in schools, securing better nutrition and health care as well as investing in small feasible projects that can generate decent income for the family. This is in addition to the fact that women are keener and prompter in paying back their borrowed loans. Also, when their small projects succeed, they tend to employ other women from the community and hence help pull other families from poverty.

Furthermore, education – as postulated by the former World Bank President, James Wolfensohn, at the Fourth UN Conference on Women – can impact every aspect in development. This is as it tends to elevate the age of marriage and promotes better use of contraceptives, hence lower child and maternal mortality rates. An educated woman will be keen on the education of her children, will have more voice, exercise better agency and therefore will be more in control of decision making – positively – influencing her life as well as her household. Equally as important is the fact that education is crucial for accessing the formal job market and hence permitting better employment opportunities. This is as well as

paving the road to women political participation and more involvement in the welfare of their community.

All the above will unquestionably lead to more efficiency, higher productivity, faster economic growth as well as better wealth distribution and society wellbeing, which is ultimately the essence of development.

The awareness that gender disparity is more evident amongst poor communities – in specific – and poorer countries – in general – already has wide consensus. However, the question remains, will women empowerment certainly follow development as a natural by product and, thus, no efforts to improve women's circumstances are required? In other words, is it enough to combat poverty and concentrate on economic growth to attain the desired empowerment? Recent studies tend to answer this question affirmative claiming that economic growth, through decreasing poverty and increasing earning opportunities, can essentially enhance gender equality and hence empowerment [9].

Economic development is believed to curb gender inequality by 'relaxing the constrains' of poor families by decreasing the choices made at the detriment of women. For instance, a family with decent resources will not have to make a choice between sending their son or daughter to school. A study in India – one of the leading 'gender-specific mortality' countries – found that in the poor areas of New Delhi, girls have more than twice the probability to die of diarrhoea than boys because of preferential health care rendered to them. The mortality of girls – relative to boys – also tend to increase substantially during droughts, as food becomes scarce and the family almost always sacrifice the wellbeing of the females in the household [9]. The reason behind that is the preconception that boys are more valuable for the family as their economic prospects in the future tend to be much higher.

Additionally, a study by Ali *et al*., [9] has indicated that, in seven countries around the world – including Afghanistan and India – both boys and girls are given the same healthcare by medical personnel once they reach the health unit. Therefore, if the health facilities closer, easily travelled to and more affordable are, families are likely to take both their sons and daughters to receive medical care. As such, it can be claimed that economic development by reducing poverty – of both households and governments – reduces the exposure and helplessness of the poorest households to sickness and hunger. And, therefore, reflects positively on the wellbeing of women even without explicitly directing policies towards improving their conditions [9].

4. Counter Arguments

Not all opinions, however, agree with the above claim. Various studies have indicated that empowerment is 'multidimensional', meaning that women can be empowered in one area and not necessarily in others [10]. For instance, women can gain empowerment within their families and not in the political realm. Also, – in reality – it's not easy to separate the different dimensions as they tend to intersect. For example, the economic and legal aspects have key impact on the family dimension [1]. Therefore, it can't be assumed that development automatically leads to empowerment.

Also, similar to the vast availability of evidence that support the notion that economic growth is enough to lead to women empowerment, there are also immense evidence of the opposite. A lot of opinions assert that economic growth, alone, is not enough to override gender discrimination at the household level as well as several other spheres. Evidence from South Korea and Taiwan – both economically developed countries – show that a wide gender gap still exists at the tertiary level of education that is not different than that of China and India. Also, its well-known that in the labor markets of many developed countries, women who are equally as qualified as men are still earning significantly less. Additionally, in many

cases legal rights for women have not – as expected – follow economic growth, especially in matters pertaining to land and property rights. Moreover, in 2011, only 26 countries all over the world achieved the target of 30% legislation seats for women [9].

The cultural aspect is not to be ignored; women still fall victims of what is expected from them. Countless research shows that the expectation that men are good candidates for scientific studies while women are good candidates for liberal arts impacts women opportunities in the labor market. This is as it not only influences the girls' education choices – as they start doubting their capabilities – but also as they don't feel worthy enough to negotiate better deals in the job market. Similarly, the preconception that women are not capable of political leadership constitutes the biggest obstacle in their involvement in the political life even in developed countries. Even in the few countries that achieved the 30% women seats goal some form of quota or affirmative action has been behind achieving this goal. As such it can be inferred that economic growth on its own cannot be enough to achieve the desired gender equality – at least not in the near future. Evidence, therefore, shows that attaining women empowerment in the meantime still requires policy interventions that are specifically geared towards attaining this goal.

5. Conclusions

The modest progress in dealing with gender parity and women empowerment has adversely influenced the accomplishment of other development goals. Kofi Annan, the former Secretary General of the United Nation – in 2005 – has indicated that attaining gender parity is a precondition to attaining other Millennium Development Goals. The matter that has motivated several governments to establish legislation that aims at securing women's civil rights and allows for better gender equality. That being said, an evident gap still exists between these intentions and their implementation.

Despite various sincere efforts, gender is still one of the main sources of injustice and marginalization in the world. It cuts a crosswise all other forms of disparities: race, ethnic background, disability, class, age and sexual orientation. This is evident both on a formal level as demonstrated by laws and public associations as well as informally through the family and community as a whole, which constrains women's and girls' choices and agency and negatively impacts their ability to participate in, contribute to, and benefit from development [3].

Failure to eradicate gender inequality has created a realm where women are constantly discriminated against; as they have less social, economic, and political supremacy. The matter that leaves women with less resources and hence less say in decision making, which further instates their poverty and marginalization and deters their vital role in development. A solid positive correlation between women empowerment and development un-doubtfully exists, nevertheless it should not be taken for granted that development alone – especially economic – is enough to attain women empowerment. The matter that further attests the notion that women empowerment remains a work in progress requiring immense efforts on both national and international levels.

REFERENCES

[1] Malhotra, A., Schuler, S. R., & Boender, C. (2002, June). Measuring women's empowerment as a variable in international development. In *background paper prepared for the World Bank Workshop on Poverty and Gender: New Perspectives*, pp. 1-59.

[2] World Development Report, 2012. Gender Equality and Development, World Bank 2011.

[3] DFID PPA Learning Partnership Gender Group (2015). A theory of change on gender equality & women's and girls' empowerment, https://infohub.practicalaction.org/handle/11283/565112.

[4] Kabeer, N. (2012). Women's economic empowerment and inclusive growth: labour markets and enterprise development. *International Development Research Centre*, *44*(10), pp. 1-70.
[5] Kabeer, N. (2008). Paid work, women's empowerment and gender justice: critical pathways of social change.
[6] Kabeer, N. (2001). Discussing Women's Empowerment Theory and Practice.
[7] Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third millennium development goal 1. *Gender & Development*, *13*(1), pp. 13-24.
[8] United Nation Women (20090. United Nations Entity for gender Equality and the Empowerment of women, Convention on the Elimination of all Forms of Discrimination Against Women, http://www.un.org/womenwatch/daw/cedaw/.
[9] Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic literature*, *50*(4), pp. 1051-79.

Neutral Statute – Diplomatic Instrument to Secure Prosperity and Economic Welfare of Switzerland

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1. Introduction

The present chapter has, **as main objectiv**e, identifying and estimating the level of the causality relation between Switzerland's prosperity and its neutral policy and the diagram of cooperation relations in the international context. The authors suggest a screening applied to the strategies and to the public policies in what the development concerns, as elaborated and implemented by the Swiss Confederation, that come as an almost non-recurrent example of peoples' contribution and participation to the democratic evolution of the country.

The Research Methodology is specific to the chapter, based on joint previous qualitative researches. The performed study is a pluridisciplinary qualitative research upon the factors that influenced the lead economic and social development of Switzerland. The whole chapter is assumed to be a case study, Switzerland being a unique model in the world when it comes to performance and people's welfare. The main analytical vector relied on the hypothesis that, the neutrality was a progress and prosperity factor. The validity of this assumption was assessed by a counterfactual analysis in which Switzerland was imagined as not having been neutral.

The specialized scientific literature in the field allowed that, based on various academic papers committed to economic theories for defining the state, the diplomatic status and other terms and concepts in the field of international relations and public international law, a suggestive analytical picture to be created. About the idea of neutrality and the viability of such political position within the new international context in which the rules of war are becoming unclear and blurry, there are studies [1] that aim to evidence the legal nature of neutrality, but also its relevance from a perspective of a new concept, of post-neutrality, that does not comply with the old rules.

About the particularity aspects of the Swiss state, Schindler [11], brings into discussion the various historical states in which, the Swiss state adopted this policy of neutrality and morality, in conjunction with the development of the state along time, while Morris K. and White T. [8] highlight the case of neutrality against EU from various perspectives (realist, constructivist, etc.). Koller, A. [6] provides us a synthesis of the Swiss federal model, stating that in the absence of federalism, Switzerland would not have existed as such. The economic performance of the cantons that make the Swiss Confederation is analysed by Gugler and Keller [4], evidencing the comparative advantages owned by each one of these.

2. Switzerland – A Prototype of Neutrality

The internal option of Switzerland for its neutral policy is based on two main features: *the state policy* and *the opinion of the civil society*. Firstly, this attitude was deliberately assumed by the political class of Switzerland, being ad literam mentioned in the Constitutional Treaty [14]. Secondly, and actually the most important aspect of the preference for neutrality, even more important than the political will officially expressed, is the civil society itself and in its quasi-integrality [3]. Switzerland officially oriented its direction of development in the field of international diplomacy towards the concept of neutral ground par excellence, namely a "secure area" where various actors (states or other entities that do not have or broke the diplomatic relations) can meet each other to negotiate in total equidistant conditions in relation with the host-country [11]. The Swiss diplomacy is considered one of the most professional in the world, through its high level of education of the involved personnel, through the organization of its representations in various countries, through providing o visible and yet discreet presence, having recognized contributions for maintaining a correct climate for international cooperation, humanitarian actions, actions in cooperation with the Red Cross and of peace, international mediation or support for development [5]. An essential feature of the way the Swiss diplomacy is formed and functions is that it doesn't insist on individual personalities that much but on effective actions and concrete messages; in return, any citizen and any businessman, by its professional and patriotic attitude, becomes the representative of his or her country for the world, these being considered as "the first unofficial ambassadors" of the Swiss way of life.

3. The Impact of the Neutrality upon the Welfare and Prosperity of Switzerland

An analysis upon the causality relation between welfare and neutrality can be done in many possible ways, but, for the current work, we have selected the hypothetical requisite according to which, Switzerland wouldn't have opted for a neutral policy along history but would have been involved in a number (not precise) of military conflicts. By this approach, we aim identifying some potential negative consequences that Switzerland would have suffered and that, in reality, it successfully avoided as a result of its pro-neutrality option [3].

The period we analyse from this approach is considered to start with the Peace of Westphalia moment (1648) and will be assessed in terms of the inexistence of a request from the Swiss Confederation's side for recognizing its neutrality. Another limiting requisite that this judgement relies on is that Switzerland, not being a colonial power, would have involved itself only in the wars of the neighbouring countries or relatively close on the continent [8].

The neutrality situation of Switzerland is unique in the world, not comparable with other states and consequently, a pure analytic exercise to make a comparison with a hypothetical non-neutral Switzerland, is a method of evidencing the importance of the concept of non-aligning and non-involvement in the international turbulences [8].

When we refer to the World Wars and particularly to the second conflagration, there are two main opinion trends about the reasons why Switzerland was not conquered by the powers of the Axis: the first variant states that, this aspect is due to its neutrality and to the fact that Switzerland was the repository of the European assets (also of the Nazi structures). The second groundswell concludes that, the neutrality and the international law did not have any relevant importance anyway, given the total war around, "respecting the neutrality not being an important aspect on the war agenda of the combatants" [9], situation otherwise confirmed by the experiences of Belgium, Holland or Norway, that were eventually conquered by the armies of the Axis.

Considering the framework the Switzerland had been led into war, the situation would have changed dramatically: had it been on the Axis's side, it would have lost the war and would have suffered significant losses, both human and material, including reparations to be paid; had it been on the Allies' side, it would have become a main target for the Axis's powers [7]. Consequently, in any of these situations, a Swiss combatant state would have suffered more that in neutrality conditions. In this case, we cannot speak about neutrality as a prosperity factor but about neutrality, as a mean of protecting the country's independence [11]. During the Cold War, Switzerland's neutrality loses of its importance as the conflict between the two super-powers manifests itself at a worldwide scale and given the circumstances in which an eventual nuclear war would affect the whole planet [7]. Thus, a Swiss state – NATO member politically and military-wise, would not have changed the situation significantly, the technical input being almost insignificant. Once giving up its neutrality aura, Switzerland would have lost further advantages, such as: credibility and the safety status offered to the investors and to the ones choosing Switzerland to treasure up their assets [11]. The competitive advantage of the banking sector represented just the same security, in the absence of it the country not being more attractive than other states. [12]

After 2001, we can foresee a gradation of Swiss's neutrality, as being forced to adapt itself to the new determinants of the modern war: terrorism, hybrid war, non-conventional war, all forms of aggression against which the classic neutrality, as defined by the international norms and common laws, is of no importance [12]. Although it is a country with a significant army, Switzerland has never been perceived as a serious threat by the neighbouring countries. This consideration relies exactly on the idea of the neutrality of the Swiss state. The Swiss society had and still has the conception that, the military service for the country's army is a civic duty and not a potential source of income [16].

4. The Analysis of the Synthetic Picture Showing the Positive and Negative Aspects of Neutrality

When we speak about the Swiss model, a synthetic picture, presenting both the positives and the negatives of the idea of neutrality corroborated with the social welfare, can be built starting from the existing elements, evidencing possible opportunities and threats that arise from these.

Table 1. Swot Analysis

Strengths	- a lower risk of being perceived as a threat by other states or entities; - not necessary to take part in military actions compared with the status of membership in a politic and military organization in which all the members serve based on the solidarity principle; - the neutrality and equidistance towards other states may be a factor of internal stability, in the sense of promoting the tolerance among the various ethnicities that compose the Swiss society.
Weaknesses	- losing some possible security advantages granted by the membership in a politic and military organization; - the neutrality may be often mistaken for opportunism and immorality, if a state renders to other states that are in conflict, resources that can be used in military actions; - the international terrorism does not consider neutrality, be it the officially declared or the real one.
Opportunities	- increased international credibility when it comes to conflicts mediation; - safety space for the individuals or the companies that want to avoid the conflict areas; - savings on expenses from funds intended for military purposes; - avoiding material destructions on the national territory and the human losses; - more freedom in elaborating the own external policy.

Threats	- in case of conflict, it cannot count on the support of a political and military organization; - in the eventuality of a large-scale conflict (continental/global), the neutrality becomes irrelevant; - the globalization may reduce the competitive advantages of Switzerland, by a relative unification; - worldwide alternatives may appear, to provide similar services; - some policy decisions of the neutral state may affect other states as well and thus lead to the impairment of the relations.

Source: Authors' research

Among the ***positive valences*** the statute of neutral state has, we can retrieve aspects referring to the risk of being attacked by another country. In general, a county that is declared neutral offers less reasons of being attacked by other states, also in terms of condemning the aggression act, by the international community. In the particular case of Switzerland, the neutrality often functioned as a factor of discouraging such initiatives, particularly after the Thirty Years' War, when the Swiss neutrality was recognized (but not granted) [10]. Also, by the position of non-involvement in organizations or political and military blocks, the country does not have to not take part in conflicts it does not want to involve in. Yet, the neutrality presents certain ***opportunities*** for a state, in an international environment, as it may be considered as a mediator in solving some conflicts or perceived as a "shelter space" for various politically underprivileged persons and especially for the multinational companies, that is a favourable aspect [16]. ***The threats*** induced by the neutrality statute may be considered in the sense of a weakness of the respective state, as in case of a conflict, it cannot rely on the help of the support network, as would be the case of the states that are members of some military organizations. In the case of Switzerland, starting from 1848 and up to the present moment, the statute of neutrality was respected by all the countries and international organizations but, there were moments in which the neutrality statute was about to be trespassed, as was the plan of the Nazi regime of invasion (The *Tannenbaum* Operation [18]).

As we, presently assist to the resuming of the worldwide arms race [17] it is not totally out of discussion the fact that, at one point, the inviolability of Switzerland to become fragile and perishing. In the situation of a repolarization (bi or multi) of the world scene, the statute of neutrality might not be acceptable anymore, consequently Switzerland might be obliged to choose one side or another, thus forcedly giving up on one of the essential concepts of the typical Swiss democracy [17].

Another type of threat derives from the fact that Switzerland is not politically and economically aligned and consequently, the Swiss Government may take certain measures, favourable for its own economy, but having a spectre of destabilizing consequences at international level. Such an example is the black swan-type event back in 2015, when the National Bank of Switzerland unilaterally and unexpectedly renounced the parity of the Swiss Franc against Euro [15], stipulation that was settled by an agreement between the Swiss State and The European Union, thus on a short term resulting in an increased volatility of the markets transitioning the Swiss currency and also in a lack of liquidity of the latter.

5. Conclusions

The Swiss State has always had a unique approach, neutral but not unimplicated in the international system. The neutrality did not mean either pacifism, autarchy or isolation, but an unalignment and impartiality against the various forms of powers in the different historical times. Being more than an option unilaterally chosen by the Swiss State, the neutrality was a mutually beneficial situation both for the country and for the world powers: Switzerland was securing its independence while the other states found, within the Swiss space, a safe refuge

and a field of negotiations. The building of the neutrality diplomacy and of the Swiss policy is not only declarative but profound, starting even from the ideology of the Swiss citizen, itself, and from the federative structure of the state.

From an economic point of view of the main factor that led to the actual welfare, we can state that is not about a direct consequence of the neutrality, but of the structure and of the mentality of the Swiss people. But the neutrality, adjoint with the other determinant factors, brought that plus of welfare that propelled Switzerland among the first places in most of the rankings, regardless it was about material or immaterial [16].

It is certain that, the Swiss success model may be a flag for other states as well, but a complete replication of it for other cases would be difficult to achieve, given the singularity of the "Swiss case". Of course, part of these aspects can be transposed in the politics of other states, fact that has already happened along the history, but an *ad integrum* implementation of the Swiss model is hardly feasible.

The conclusions of the chapter do not exhaust the theme of the analysis but leave the treated subject open for further studies and new scientific approaches, the niche of the diplomatic area the present research was accomplished within being less touched by the specialized scientific literature. In this respect, studies can be conducted in the direction of an empiric or of a more exact analytic determination of the influence level the neutrality has, or of estimating the impact of the idea of equidistance and non-involvement in the post-neutrality and globalization era.

REFERENCES

[1] Angius, C., Devine, K. (2011) – *'Neutrality: A Really Dead Concept?' A Reprise*, *Cooperation and Conflict*, Nr. 46 (3), pp. 265-284, Sagepub.com

[2] Bălăşoiu, N. (2017) – *Revenirea la agenda de putere*, Ed. Institutului de Ştiinţe Politice şi Relaţii Internaţionale "Ion I. C. Brătianu", Bucureşti.

[3] Fischer, T. (2013) – *Switzerland: Invention of Permanent Neutrality*, Neutrality in the 21st Century, International and Security Affairs Centre, Belgrad, Serbia, p. 43.

[4] Gugler, P., Keller, M (2009). – *The Economic Performance of Swiss Regions*, Center for Competitiveness, University of Fribourg, Elveţia.

[5] Jalberg, S. (2013) – Politique etrangere suisse. Diplomatie et aide au development sous *le meme toit*, 21.08.2013, https://www.swissinfo.ch/fre/politique-%C3%A9trang%C3%A8re suisse_diplomatie-et-aide-au-d%C3%A9veloppement-sous-le-m%C3%AAme-toit/36721126, [Last accessed 29.01.2019]

[6] Koller, A. (2002) – *Introduction to the Swiss Model of Federalism*, International Conference on Federalism.

[7] Mannitz, S., Haß, R (2009). – *The Swiss Concept of Soldiering in Practice*: The Swiss Case, Peace Research Institute, Frankfurt, Germania, p. 3.

[8] Morris, K., White, T. J. (2011) – *Neutrality and the European Union: The Case of Switzerland*, Journal of Law and Conflict Resolution Vol. 3(7), pp. 104-111.

[9] Reginbogin, H. R. (2009) – A Comparative Analysis of the Neutrality of Switzerland and Other Neutral Nations During WW II, LIT Verlag Münster, p. 106.

[10] Schandler, M. (2005) – *The Economics of Neutrality: Switzerland and the United States in World War II*, Teză de disertaţie, Departamentul de istorie, Union College, Louisiana State University, Louisiana, Statele Unite ale Americii, p. 6.

[11] Schindler, D. (1998) – *Neutrality and Morality: Developments in Switzerland and in the International Community*, American University International Law Review, Vol. 14. Nr. 1, Articolul 9

[12] Schmid, S. (2013) – *Against Terrorism There Can Be No Neutrality*, interviu în Security Index Vol. 13, Nr. 1 (81).

[13] Whittlesey, F. (2007) – *Switzerland on Trial*, The Quarterly Journal of the Council of American Ambassadors, p. 3.

[14] Constituţia Federală an Elveţiei, Capitolul 5 (Autorităţile Federale), Art. 173 şi 183, https://www.admin.ch/opc/en/classified-compilation/19995395/201601010000/101.pdf, [Last accessed 29.01.2019]
[15] Financemagnates.com, Golovtchenko, V. (2015) – *Industry Impact: Swiss Black Swan Storms Through Currency Markets*, 15.01.2015, http://www.financemagnates.com/forex/brokers/industry-impact-swiss-black-swan-storms-through-currency-markets, [Last accessed 29.01.2019]
[16] Swiss Neutrality (2017), 4th Edition, https://www.eda.admin.ch/dam/eda/en/documents/aussenpolitik/voelkerrecht/Swiss%20neutrality.pdf [Last accessed 29.01.2019]
[17] Nbcnews.com, Dann, C. (2016) – *Donald Trump on Nukes: 'Let It Be an Arms Race'*, http://www.nbcnews.com/politics/politics-news/trump-nukes-let-it-be-arms-race-n699526, [Last accessed 02.02.2019]
[18] Swissinfo.ch, (2016) Government Eases Middle East Weapons Export Ban, 20.04.2016, https://www.swissinfo.ch/eng/politics/conflict-zone_government-eases-middle-east-weapons-export-ban/42102492, [Last accessed 02.02.2019]

Public Sector as a Purchaser of Goods and Its Influence on Market Transactions

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1. Introduction

Performing allocation function, related to providing the society with public goods and services[1], requires public sector to purchase various goods and services produced by private sector. This includes security, justice, administration, i.e., tasks included in classic role of the public sector, education, healthcare, social security (social role), as well as environment protection, R&D, technical infrastructure, etc., namely activities within economic role of the public sector. In general, the larger is the scope of allocation function, the larger are needs of the public sector in terms of purchasing goods and services.

In countries with well-developed market economy, public sector makes purchases from the private suppliers through public procurement. Assuming that scale of purchases made by this sector corresponds with total value of public procurement, the share thereof in GDP in OECD countries was approximately 12% (from 5.1% in Mexico to 20.2% in Netherlands) [4], in European Union – ca. 14%, whereas in Poland – 8.23% (163.2 billion PLN) [6].

Being a derivative of varying scope and structure of allocation function, the structure of public procurement is also different in various countries. In all members of OECD, the largest percentage of public procurement in 2015 was related to healthcare (29.8%) and so-called economic affairs (17%) [4], followed by education (11.9%), national defence (10.1%), social security (9.8%) and public administration services (9.1%). However, in Poland and Slovakia, almost 30% of procurement was related to performing of economic function (mostly construction of technical infrastructure), in Switzerland almost 22% of procurement was related to operation of public administration, same as social security and education, whereas in Belgium almost half of public procurement was related to healthcare [4].

Although purchases of goods, services and works are the main reason for public procurement, the governments are more and more frequently using this instrument to achieve other objectives of their social and economic policy [7, 8, 9]. These may include social objectives (increase in employment rate, improvement of work conditions, equality of opportunities, social integration, availability, issues of sustainable development, such as ethics of trade or socially responsible business), environmental objectives (sustainable use of resources in production, sustainable consumption, mitigation of climate changes), economic objectives (supporting small and medium-sized enterprises or supporting innovativeness in economy). The data from OECD indicates, that out of 36 members, in 2016, 25 countries included "green" public procurement (i.e., involving environmental objectives) in strategic

[1] The existence of pure public goods is considered in economic theory to be an occurrence of microeconomic market failure. This is a result of characteristic features of these goods, particularly non-rivalry and non-excludability [1, 2]. In practice, pure public goods are rare, however, the term "public goods" also includes merit goods [3]. The financing and/or production of such goods is undertaken by the government/public sector, when consumption thereof is deemed to be below their value.

policies developed by central governments, 24 countries included procurements supporting the sector of small and medium-sized enterprises and 19 – procurements supporting innovativeness [10].

Considering scale and structure of public procurement, public sector may be perceived as an important actor on the market that should behave as private purchaser focused on achieving best value. However, since public procurement, similarly to all government activities, is financed from taxpayers' money, the governments are expected to proceed efficiently in order to ensure high quality of offered services and protect public interest.

Therefore, the process of purchasing goods by the public sector is subject to multitude of regulations. Although in general, the process is actuated by certain rules, such as equal treatment of providers and non-discrimination, which should ensure competitiveness, transparency and access to the market, monitoring conducted in the European Union indicates, that in many countries even these basic standards are not being observed. Hence the question: what are the consequences of purchasing activities of public sector in relation to transactions taking place on the market?

2. Methodology

This chapter is an attempt at model presentation of influence of public sector as purchaser of goods and services on market transactions. The research was conducted using critical analysis of subject literature and analysis of reports from OECD, European Union and Poland.

The issue of public procurement is widely discussed in literature from various fields such as law, management and economics. In the latter, public procurement is analysed from various perspectives, e.g., theory of public goods and external effects as reasons for purchasing goods and services by public sector, efficiency thereof, significance as instrument for rationalisation of public spending, tool for supporting small and medium-sized enterprises or innovativeness. The research also included various approaches, such as transaction cost theory [11], agency theory [12] and social exchange theory [13]. However, as highlighted by A. S. Graells, the research relatively rarely undertook the issues of economic consequences and impact of public procurement on behaviour of actors providing goods and services to public sector [14] and thus on their participation in transactions[2]. In his analyses, Graells made an interesting assumption that public procurement is indeed a regulatory instrument capable of creating market interference[3]. In case no legal ramifications pertaining, public procurement existed, public sector would arguably behave similarly to private purchaser.

However, the existence of these ramifications leads to deviation from optimal market equilibrium, hence interfering with market mechanism, since public purchaser can aggregate purchasing power, create barriers in access to public demand, apply certain standards that are not frequently used on the market or increase transaction costs. This assumption became basis for application of economic theory of regulation as a theoretical foundation for further considerations.

[2] Transaction is a series of interconnected activities, the result of which is achievement of certain commercial, economic or legal objectives (e.g., profit, establishing cooperation, exchange of goods, etc.). In other words, it is an operation performed in order to create, change or transfer certain substantive or intangible rights [15]. This chapter is focusing mostly on commercial transactions, which are considered same as contracts.

[3] Aside from this assumption, A. S. Graells proposed model for assessment of such interferences and analyzed three examples of legal regulations of public procurement as well as their impact on market competition mechanism [14].

3. Results

3.1. Public Procurement as a Regulation

Despite no unequivocal definition of regulation exists, in general, the term is understood as use of legal instruments in relation to achieving objectives of socio-economic policy [16]. The aforementioned matter is a subject within the economic theory of regulation. This theory was developed based on theory of market failure and theory of government failures. The literature highlights differences between social and economic regulations. Among the economic regulations, two kinds are distinguished: structural regulations and conduct regulations [17].

Whereas the former is used to regulate market structure and competition, the latter serve to stimulate certain behaviours among the economic entities, encouraging or discouraging them from undertaking certain actions. The public procurement may be considered to belong to the second category.

In all countries, public procurement is regulated by the law. In Poland, rules and procedures are determined by the act on Public Procurement Law [18]. According to this act, public procurement is defined as paid contract between commissioner and contractor, a subject of which is goods, service or construction works. The act also includes a catalogue of subject exclusions, to which the procedures described in the act do not apply. One of these exclusions are procurements and biddings with value below 30.000 €. The aim of initiating and conducting proceedings towards public procurement is for public purchaser to obtain the best offer. The best offer is considered to be the one with most advantageous balance of cost or price and other criteria related to the subject of procurement, or the one with lowest cost or price in cases, where it is the only criterium. Realization of other objectives of public procurement (mentioned in the introduction), used by the government to influence behaviours of other entities, is related to ability of the commissioner to use additional criteria for assessment of offers, such as: quality (technical parameters and functional and aesthetical value), social aspects (including social and employment integration, accessibility to disabled people or inclusion of needs of the users), environmental aspects (e.g., energetic efficiency of the subject of the commission), innovative aspect, organization, professional qualifications and experience of people performing the order in case where these aspects may have significant impact on quality, after-sale services and technical support, conditions of delivery (e.g., date, means of delivery and time or period of delivery). Public purchaser, by selecting the most advantageous offer, chooses one with: 1) the best ratio of quality to price – contractors are competing with both price and quality; 2) highest quality achievable at given price or cost – contractors compete with quality; 3) lowest price – contractors compete only with price.

4. Public Procurement and Market Transactions

Market transactions are frequently considered to be the same as contracts[4]. Assumption can be made that market transaction, like contract, consist of several subsequent stages. These stages are: 1) search for object and partners for the contract; 2) verification of conditions; 3) conclusion of the contract; 4) execution; 5) oversight of the course of the contract and, possibly, its renegotiation and exercising of rights [20]. Public procurement, in some way, reflects that sequence. Taking this as a starting point for further considerations, basing on results obtained by other authors and monitoring of system of public procurement, the most

[4] According to M.C. Jensen and W.H. Meckling, contract is a voluntary agreement on mutual obligations pertaining exchange of goods between parties [19].

important market interferences generated by public purchaser and resulting from suppliers' behaviours are presented.

The first stage, namely the search for object and partners for the contract, corresponds in public procurement with preparation of commission documentation (particularly Important Order Specifications[5]) and the announcement. This stage is controversial and has an impact on barriers to access to the bidding, even though maintaining fair competition and equal treatment of contractors is a basic rule for IOS. In practice however, as highlighted by W. Walczak, "methodology of profiling requirements for IOS is a particularly important instrument which can significantly limit market competitiveness by effectively blocking access to the proceedings for many enterprises. At the same time, it can also be used to set biddings up for particular beneficiaries within the boundaries of the law" [21]. Conditions of participation of providers in the proceedings are of singular importance in this matter. The legislator described them as the following: having rights to perform certain actions or activities if regulations require one to have them, possessing knowledge and experience, possessing technical potential and personnel needed for execution of commission, financial and economic situation. This provision allows the commissioner to formulate procurement requirements in a way beneficial to certain suppliers. This aspect was also noted by B. Bourbit in his research, who pointed out that strict and narrow procurement conditions, which do not allow providers to present their added value, are a source of interference. This is also confirmed by data from monitoring conducted in the European Union, which indicates that in 13 member states, in over 20% of all proceedings, only one offer is presented [5]. At the same time, high level of complexity of IOS causes increase in transaction costs [11]. A report created by Urząd Ochrony Konkurencji i Konsumenta (UOKiK – Office for Competition and Customer Protection) suggests that in the stage of preparing of documentation, vertical collusions are particularly dangerous to fair competition, as they may lead to creating special privileges for certain providers [22]. An equally important source of interference is also improper estimation of value of the commission and provider's fee, which may subsequently cause lack of interest in the bidding [13].

The stage of verification of contract conditions is related to selection of the provider. From the perspective of public purchaser, three key dangers to market competition occur in this stage, namely selection of "worse provider", waterbed effect and corruption. In the first case, public purchaser following the price criterium selects the entity offering lowest price.

However, the price in the offer may be caused by low quality or dishonesty of the provider [12]. In turn, the waterbed effect is, according to A. S. Graells, one of the most significant factors with destructive impact on the competition in the long term [14]. This effect is described as an attempt at compensating better conditions offered to a stronger purchaser by presenting weaker partners with much worse offer. This way, the provider transfers the additional costs (income lost due to execution of contract with public purchaser) on other contractors. This leads to worsening of market conditions and, subsequently, social welfare.

Both of the aforementioned effects are related to the fact that the public purchaser makes decision in conditions of information asymmetry.

Willingness to participate in the bidding also encourages entrepreneurs to undertake actions negatively affecting the competition. These actions include unfair competition, caused

[5] In general, IOS should include the following: description of object of commission, conditions of participation in proceedings and description of how fulfilment of these conditions will be assessed, list of documents that should be presented to confirm fulfillment of these conditions, requirements pertaining tendering security, period of offer validity, description of how the offers should be prepared and how the price is to be calculated, description of criteria used during selection process, including significance of these criteria and means of assessment of offers.

by, e.g., blatantly low price, offers being submitted by companies belonging to the same capital group, horizontal collusions and withholding important information [22].

The stage of execution of the commission is related mostly to transfer of risk to the provider [23, 24], while oversight of the execution creates dangers in form of rising transaction costs or lack of elasticity in contract renegotiation [13].

Tab. 1. presents an attempt at systematization of the most important sources of interference in market transactions caused by public procurement.

Tab. 1. Impact of public procurement on market transactions

Stage of public procurement	Source of interference in market transactions	
	Public purchaser	Supplier
Preparation of documentation and announcement of public procurement	1) Barriers in access to bids (limiting competition) caused by: lack of information on bidding, short deadline for offers, requirements put in front of supplier, ambiguous description of the commission, price as the only criterium, wrong estimates about costs and supplier's fee 2) Vertical collusions and favouritism 3) Generating transactional costs 4) Overly extensive bureaucracy	
Verification of contract conditions	1) Small number of offers 2) Selecting "worse supplier" 3) Waterbed effect 4) Corruption	1) Unfair competition caused by: blatantly low price, submitting more than one offer by company belonging to the same holding group 2) Bidding collusion (horizontal) 3) Withholding information
Signing of the contract	1) Transactional costs	1) Transactional costs
Execution of the commission	1) Transferring risks of execution 2) Transactional costs of monitoring of the contract	1) Excessive risks 2) High transactional costs of system adaptation 3) Unreliable manner of execution of contract 4) Coercing additional funds 5) Not honouring obligations to subcontractors
Oversight of the execution of the commission, possibly renegotiation of conditions and exercising rights	1) Controlling and enforcing contract conditions 2) Lack of elasticity in changing conditions 3) Transferring transactional costs related to contract enforcement onto the actor with lesser bargaining power	1) High transactional costs of contract renegotiation and exercising of rights.

Source: authors

5. Conclusions

Deliberations presented in this chapter indicate that public sector, acting as a purchaser of goods necessary for providing public goods and services, uses public procurement for that purpose. At the same time, this procurement is also used to influence behaviours of other entities, hence it may be considered a regulatory instrument. This is a result of more and more elaborate objectives set for these procurements. The aim is no longer just to obtain the best price or value, the spectrum is much broader and includes impact on social inclusion,

environment protection, supporting small and medium-sized enterprises, increase in innovativeness etc.

Unequivocal assessment of influence of public sector on market transactions is very difficult. This is a result of complexity of market structures and interdependencies occurring due to public procurement. However, the analysis indicates that public procurement negatively affects market transactions and the source of these interferences is systemic.

Evolution of public procurement laws undoubtedly leads to improvement of some aspects, however, total elimination does not seem possible due to "Procureosclerosis", as it is called by J. Pregnato [25].

REFERENCES

[1] Samuelson, A. P. (1955). Diagrammatic Exposition of a Theory of Public Expenditure. Review of Economics and Statistics Vol. 4(37), p. 351.

[2] Holcombe, R. G. (1997). A Theory of Theory of Public Goods. Review of Austrian Economics, vol. 10, no.1, pp. 1-22.

[3] Musgrave, R.A. (1957). A Multiple Theory of Budget Determination. Finanz-Archiv vol. 17, p. 333-343.

[4] OECD (2017). Government at a Glance 2017, Size of public procurement, DOI: https://dx.doi.org/10.1787/gov_glance-2017-59-en

[5] European Commission (2018). Single Market Scoreboard. Performance per policy area. Public Procurement. http://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm

[6] Urząd Zamówień Publicznych (2018). Sprawozdanie Prezesa Urzędu Zamówień Publicznych o funkcjonowaniu system zamówień publicznych w 2017 r. Warszawa, p. 27

[7] Lindskog, H., Brege, S., Brehmer, P., How public procurement can influence business and social development? http://www.diva-portal.org/smash/get/diva2:399291/FULLTEXT03

[8] McCrudden, Ch. (2004). Using public procurement to achieve social outcomes. Natural Resources Forum 28, pp. 257-267.

[9] Walker, H., Philips, W. (2009). Sustainable procurement: emerging issues. International Journal Procurement Management vol. 2, no. 1, pp. 41-61.

[10] OECD (2017). Government at a Glance 2017, Strategic public procurement. DOI: https://dx.doi.org/10.1787/gov_glance-2017-60-en.

[11] Puciato, D. (2018). Koszty transakcyjne w zamówieniach publicznych. Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, no. 367, pp. 91-101.

[12] Puciato, D. (2018). Zamówienie publiczne jako kontrakt w relacji pryncypał-agent. Ruch Prawniczy, Ekonomiczny i Socjologiczny, vol. 3, pp. 167-180.

[13] Bourbita, B. (2017). Tensions in buyer-supplier relationships in the public sector. University of Twente, pp. 1-54.

[14] Graells, A. S., (2011). Public Procurement and the EU Competition Rules. Hart Publishing, Oxford Oregon, pp. 56-72.

[15] Encyklopedia Zarządzania. Transakcja. https://mfiles.pl/pl/index.php/Transakcja

[16] Hertog, J. den., (1999). General Theories of Regulation, http://encyclo.findlaw.com/5000book.pdf

[17] Hertog, J. den (2010), Review of economic theories of regulation, Discussion Paper Series no. 10-18, Tjalling C. Koopmans Research Institute, pp. 1-61.

[18] Ustawa z 29 stycznia 2004 r. – Prawo zamówień publicznych, Dz. U. 2017, poz. 1579 z późn. zm.

[19] Jensen, M.C., Meckling, W.H. (1976). Theory of the firm: managerial behaviour, agency costs and capital structure, Journal of Financial Economics 3(4), pp. 305-360.

[20] Staniek, Z. (2017). Ekonomia instytucjonalna. Dlaczego instytucje są ważne, Warszawa, pp. 150-181.

[21] Walczak, W. (2010). Konkurencyjność przedsiębiorstw a zamówienia publiczne, Master of Biznes Administration, 6(115), pp. 86-97.
[22] UOKiK (2013). Raport: System zamówień publicznych a rozwój konkurencji w gospodarce. Warszawa, pp. 1-119.
[23] Lissowski, O. (2013). Efektywność zamówień publicznych. Studia Ekonomiczne Uniwersytetu Ekonomicznego w Katowicach, no. 168, pp. 174-185.
[24] Gola, J., Bobowski, S. (2017). Efektywność funkcjonowania systemu zamówień publicznych w Polsce. Studia Ekonomiczne Uniwersytetu Ekonomicznego w Katowicach, no. 497, pp. 239-248.
[25] Pregnato, J., (1995). Procureosclerosis. National Contract Management Journal, vol. 26, no. 2, pp. 65-76.

Evaluating Healthcare – The Perspective of the Healthcare Consumer

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1. The Scope of Healthcare Consumer Evaluation

Assuming the WHO's paradigm of patient-oriented, or more extensively human-oriented healthcare as the basis for this discussion, the issue becomes a priority. Nevertheless, at the outset it is worth reviewing possible domains and points of reference for the assessment of the notional category stipulated in the title. According to the division proposed by J. Horovitz, the quality of client's service (here: patient's service) can be evaluated from the real perspective, thus taking into account technical, clinical parameters and from the perceptual perspective, i.e., subjective one, concerning the client's (here: patient's) impressions and feelings – Tab. 1.

In that regard both the offered valued as well as the value provided to the patient by a service provider or by service providers' network can serve as the evaluation domain. In the first case the evaluation focuses on an offer, organization of care and the relation of patient-service provider communication, which are in a sense "encapsulated" in a promise made to patients. This service-related promise constitutes a carrier of the value offered to the client.

Hence, it is an *ex-ante* evaluation. Whereas the value provided to a patient can only be evaluated ex post, therefore, only once a service has been used. Both objective elements, such as patient's health, and subjective ones, such as patients' satisfaction from the services provided, are subject to evaluation. The view of the evaluation of patient's service quality presented below can be deemed as dichotomous. Since on the one hand, it is the focus of service providers themselves, and on the other hand, it is subject to patient's assessment, the assessment of health service consumers [1].

Table 1. Areas of patient's service quality measurement

Point of view/domain	A. Value offered to patients	B. Value provided to patients
1. Real value	1A. new efficiency levels creating a difference for patients	1B. efficiency indicator of currently rendered services
2. Perceived value	2A. new value dimensions desired by patients 2A. benefits sought by patients 2A. image of what is being offered (especially to non-clients, future, potential patients)	2B. satisfaction of current patients (or lack thereof) from the quality perceived as being significant 2B. patients' complaints/compliments 2B. opportunities for improvements perceived by patients

Source: own work based on [2]

With reference to the above matrix, 1A and 1B fields can be treated as the areas of evaluation of patient's service quality from internal, organizational perspective. In this context the quality of patient's service is an important element of comprehensive quality management models, such as TQM (*Total Quality Management*), EFQM EM (*European Foundation for Quality Management Excellence Model*), or ISO standards for healthcare [3, 4].

A system of clinical quality measurement of QOF (Quality and Outcomes Framework) according to the British Medical Association of 2003 [5] is a certain indication of the application of the indicators of healthcare quality evaluation (not only patient's service evaluation) with regard to chronically ill patients. The point-based measurement system covers structure, process and result (Tab. 2).

Table 2. Point-based system of service quality evaluation within the scope of QOF applied in in the practice of general practitioners in the NHS in Great Britain – examples

Area of measurement	Indicator	objective	points
structure	In primary care practice there is a system of registration for patients who suffered a stroke and suffering from transient ischemic attacks	YES	4
process	The percentage of patients who suffered myocardial infarction currently treated ACE-1	25-70%	7
result	- The percentage of patients with diabetes and arterial blood pressure equal to or higher than 145/85 mm Hg	25-55%	17
	- The percentage of patients over 16 years of age in the course of epilepsy pharmacotherapy who did not suffer from an epileptic fit in the last 12 months	25-70%	6

Source: own work based on [5]

The above point-based system is used in the practice of general practitioners of the British NHS with respect to chronically ill patients, chiefly with ischaemic heart disease, arterial hypertension and diabetes. Maximum number of points (coming from 80 indicators) that can be scored is 1000. General practitioners' remuneration is conditional upon the number of accumulated points; therefore, it provides an incentive for improving the quality of clinical care provided to patients.

In 2006 QOF system was additionally extended by a platform of patients' evaluation regarding the length of consultation or the extent of implementation of preventive programmes, such as cervical cancer prevention. Therefore, it is a way of taking account of areas 2A and 2B in the evaluation (from Tab. 2). Thereby, learning the opinion, impression, or perception of a patient, who is the subject of all the activities, becomes an indispensable element of service process assessment. The issue has been the focus of health care researchers' interest, which led to accumulating extensive empirical material and arriving at conclusions concerning specific characteristics of patient-service provider relationships [6]. It regards both the study of the value offered as well as the value provided, although a majority of empirical studies is dedicated to the value received by patients [7].

2. The Approaches to the Evaluation of Healthcare

The most common approaches to the evaluation and measurement of patient's care quality, utilize two fundamental tools: Serqual and Servperf. The concept of Servqual (*service quality*), devised by Zeithaml's team, is one of the most extensive ways of service quality measurement and it is based on a theory of expected discrepancy [8]. The devised research instrument is based on service quality measurements determined by researchers (material elements, reliability, reaction speed, confidence and empathy), which were described by 22 positive sentences with a seven-point Likert scale. Despite its popularity among researchers, the model was also subject to extensive criticism [9]. Firstly, measurement difficulties chiefly arise from the specification of an arithmetic difference of the above-mentioned measurements, which is caused by lack of measurability of certain determinants, for instance aesthetics, pleasure or pain. Secondly, the cognitive value of the instrument depends on the interpretation of the concept of *expectations towards the service* in the model. Servqual authors defined it in

terms of service provider's obligations and not speculations [10]. Thus, expectations do not constitute a client's prediction, but they represent a certain ideal model of service provider's actions. Furthermore, the generalizations of satisfaction paradigm of service perceived quality introduced by Servqual authors need to be questioned. Satisfaction can be described as an ephemeral phenomenon, an evaluation carried out by a client on the grounds of their individual encounters with a service. It chiefly reflects emotional (affective) elements of client's reaction. Only the sum of partial satisfaction along with prior experience contributes to the perceived service quality. It assumes the form of a long-term attitude resulting from a specific repeatability of the quality of service delivery. Simultaneously, it takes into account the elements of rational evaluation.

Another research model of perceived service quality, equally popular as Servqual, is Servperf (*service performance*) [11] and it is based on a series of assumptions: perceived quality is best expressed through the concept of "attitudes", an optimal way of operationalization of attitudes is the use of "adequacy-significance" model, current performance of a service can adequately capture the manner in which service buyers perceive the quality offered by a given service provider. The authors concentrate on the characteristics of the process and the result of service product, but they omit the client's idea (expectation).

Moreover, in Servperf one needs to assume that client's satisfaction is an original phenomenon in relation to perceived quality, and that client's satisfaction as well as perceived quality have a significant impact on the client's (here: patient's) intention of purchasing a service.

The measurement concepts of patient service quality alternatives to Servqual and Servperf are a Europep model, critical incident technique – CIT and remark sheets. Europep is a standard tool for evaluation of general practitioner's service quality. It comprises 21 statements concerning both technical aspects of services, as well as functional ones, which a patient assesses on a scale of 1 to 5, where 1 means very bad and 5 – very good [12]. The possibility of a wider adaptation of Europep model in integrated health care is limited owing to its concentration on primary care and consideration of every appointment at a general practitioner's as a separate service episode.

In the critical incidence technique clients are asked in a personal interview with the use of open-ended questions to list all such incidences in contacts with a service provider that were particularly negative, as well as positive [13]. While in the remark sheet technique patients may put questionnaires as well as written non-structuralized comments into boxes placed in waiting rooms. Another method is the so-called "hot-lines", providing direct contact with a person representing an organization and enabling a quick reaction. The echoes of such an approach, in which the number of complaints is an indicator of patients' perceived quality, are present in a comprehensive model of an assessment of institution achievements devised by Norton and Kaplan [14].

3. Conclusions

All the approaches presented above require the activity on the part of a client, which in practice frequently fails. Since in case of any dissatisfaction many patients would sooner cease the use of a given service, or use the service provided by a competitor, rather than undertake any intervention (file a complaint, a written comment). On account of the above, it is difficult to determine the actual correlation between the observed effects and the satisfaction level of the entire clientele. Better results can be obtained if a service provider is the party initiating contacts.

REFERENCES

[1] Świtalski, W. (2008). Czy kategoria jakości jest ważna w ekonomii? Ekonomista No. 2, p. 141.
[2] Horovitz, J. (2006). Strategia obsługi klienta. PWE, Warszawa, p. 67.
[3] Rudawska, I., Prause, G. (2007). Quality management for health sector – a comparative analysis of German and Polish experiences. Ekonomia p. 18.
[4] Baylina, P., Moreira, P. (2011). Challenging healthcare-associated infections: a review of healthcare quality management issues. Journal of Management & Marketing in Healthcare 4 (4), pp. 254-264.
[5] Nolte, E., Mckee, M. (eds.). (2008). Caring for people with chronic conditions. A health system perspective. European Observatory on Health Systems and Policies Series, Open University Press, Glasgow.
[6] Rudawska, I., Sagan, A. (2007). A Multilevel Dimensions of Consumer Relationships in the Healthcare Service Market, MLSEM vs MLIRT Approach. (in) Decker, R., H.J. Lenz, (eds.) Advances in Data Analysis. Freie Universitat Berlin, Springer-Verlag, Heidelberg-Berlin-New York, p. 481.
[7] Vakani, F., Fatmi, Z., Naqvi, K. (2011). Three-level quality assessment of a dental hospital using EFQM. International Journal of Health Care Quality Assurance 24 (8), pp. 582-581.
[8] Zeithaml, V.A., Berry, L.L., Parasuraman, A. (1988). Communication and control process in the delivery of service quality. Journal of Marketing 52 (2), pp. 35-48.
[9] Cronin, J.J., Taylor, S.A. (1994). SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality. Journal of Marketing 58 (1), pp. 125-131.
[10] Teas, R. (1993). Expectations, Performance, Evaluation and Consumers' Perceptions of Quality. Journal of Marketing 57, p. 19.
[11] Cronin, J., Taylor, S. (1992). Measuring Service Quality: A Re-examination and Extension. Journal of Marketing 56 (3), p. 55.
[12] Krot, K. (2008). Jakość i marketing usług medycznych. Wyd. ABC a Wolters Kluwer, Warszawa, pp. 52-53.
[13] Bitner, M., Booms, B., Tetreault, M. (1990). The Service Encounter: Diagnosing Favorable and Unfavorable Incidents. Journal of Marketing 54, p. 73.
[14] Kaplan, R.S., Norton, D.P. (2006). Strategiczna karta wyników. Jak przełożyć strategię na działanie, Warszawa, p. 75.

On the Sensitivity of the Optimal Length of Short Lists in a Two-Stage Job Search Problem

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1. Introduction

This chapter considers a two-stage job search problem in which an employer gathers information about prospective employees. In the first stage, the employer invites written applications. On the basis of these applications, a short list of candidates is invited for interview and the job is offered to the candidate who is ranked most highly according to the written application and the job interview combined. The first stage can be facilitated by the Internet. It is assumed that the employer pays the travel costs incurred by the short-listed applicants. Hence, the search costs in the first round are low, but high in the second round.

A short list is a heuristic tool useful to decision makers (DMs) when some information about candidates can be obtained at low cost, but an accurate appraisal of an applicant's value is relatively costly. A successful heuristic must be adapted to abilities of decision makers and the structure of the information gained during search (see Simon [1], [2], Todd and Gigerenzer [3], Bobadilla-Suarez and Love [4]). Much work has been published recently on the concept of short lists, which are useful when the costs of exhaustive search are too high or the amount of information available exceeds the cognitive abilities of DMs (see Masatlioglu *et al*., [5] and Lleras *et al*., [6]). Bora and Kops [7] model search processes where DMs make short lists based on information from their peers. Short lists are also useful when offers are categorizable (see Armouti-Hansen and Kops [8]). However, not much work has been published on the question of how long short lists should be according to the parameters of a search problem and the structure of the information. For example, an employer may interview a short list of four promising candidates based on a set of written applications. One question regards the situations in which using short lists of such length are optimal or near-optimal. The model presented here is a step towards answering such questions.

The model presented here is similar to the one of Analytis *et al.*, [9]. In round one (parallel search), offers are ranked on the basis of initial information. In the second round (sequential search), the DM closely observes offers in descending order of rank and stops when the value of an offer exceeds the reward expected from future search. To realise such a strategy, the values of offers must be observed and deriving the optimal strategy requires knowledge of the distribution of the value of an offer given the signal observed in the first round.

The model considered here was presented in Ramsey [10] in the framework of using online and then offline search for a valuable good. In the first round, a fixed number, n, of offers are ranked according to initial information. The k most highly ranked offers are then inspected closely, after which the currently highest ranked offer is accepted. It is assumed that the signals obtained in these two rounds can be described by two random variables (X_1, X_2) from a continuous joint distribution. The DM cannot measure these signals, but can rank offers according to them. The DM's payoff is a function of the values of the signals minus the

search costs incurred. To implement a strategy of this form, the DM must be able to rank offers according to the signals observed. Derivation of the optimal strategy requires knowledge of the signal's joint distribution. This chapter investigates how sensitive the optimal strategy is to changes in the parameters (distribution of the signals, search costs). The search costs are assumed to be convex in the length of the short list, since cognitive effort and the time spent searching are increasing in the length of the short list.

Section 2 presents the model and recalls a necessary and sufficient condition that the optimal strategy of this form must satisfy (given in Ramsey [10]). Numerical results regarding the effect of the joint distribution of the signals and the search costs on the optimal strategy are presented in Section 3. Section 4 gives some conclusions and directions for future research.

2. The Model

An employer first observes in parallel a set of *n* job applications. Assume that the employer can assign a linear ranking (from 1 to *n*), called the initial ranking, to these applications (rank *i* corresponds to the *i*-th best application). The employer's strategy is defined by the number of applicants invited for interview, *k*, where $1 \leq k \leq n$. When $1 < k < n$, the employer interviews the top *k* applicants from the initial ranking. If $k = 1$, then the employer chooses the best applicant according to the initial ranking without any interviews. If $k = n$, then the employer interviews all the applicants. Given the employer interviews all the applicants, then by assumption he/she can assign a linear ranking to these applicants based on the application and the interview combined. This ranking will be termed the overall ranking. In reality, after the interviews, the employer can only rank the *k* interviewed applicants with respect to each other (the employer's partial ranking). By assumption, this partial ranking agrees with the overall ranking, i.e., offer *i* is ranked higher than offer *j* in a partial ranking if and only if *i* is ranked higher than offer *j* in the overall ranking.

Note that at each stage the employer essentially reduces multi-dimensional information into a one-dimensional ranking. Any method for ranking based on multiple criteria (e.g., TOPSIS, see Yoon and Hwang [11]) may be used to rank applicants according to the written application and then rank the interviewed applicants. Such an approach will be adopted in the future.

Assume that the value of applicant *i* to the employer, W_i, is the sum of the values of two quantitative signals $X_{1,i}$ and $X_{2,i}$ from a continuous joint distribution, i.e. $W_i = X_{1,i} + X_{2,i}$ The first signal summarizes the written application and the second summarizes the interview.

Assume that the employer cannot observe the precise values of these signals, but can make perfect pairwise comparisons between applicants. Hence, if $X_{1,i} > X_{1,j}$, then applicant *i* is ranked higher than applicant *j* on the basis of the written application and if $X_{1,i} + X_{2,i} > X_{1,j} + X_{2,j}$, then applicant *i* would be ranked higher than applicant *j* after interviews.

The employer aims to maximize his/her expected reward, defined to be the value of the applicant accepted minus the search costs. Search costs are split into the costs of comparing the written applications (collecting and examining them, as well as forming the short list) and interview costs (reimbursing the travel costs of the interviewees and the time involved in interviews). The costs of initial inspection, given by $f_1(k, n)$, are strictly increasing in the number of offers and the length of the short list, *n* and *k* respectively. It is assumed that f_1 is convex in *k*, i.e. $f_1(k, n) - f_1(k-1, n)$ is non-decreasing in *k*. This is a slight simplification, since when $k = n$ the employer automatically interviews all the applicants and hence, in this case, the search costs should not include the costs of controlling a short list.

The costs of interviewing the applicants on the short list, given by $f_2(k)$, are assumed to be increasing and convex in length of the short list. It may be natural to assume that the costs of

interviewing are linear in k (when $k \geq 2$, then each interviewee is successively compared to the best ranked of those interviewed previously). Let $f(k,n) = f_1(k,n) + f_2(k)$ denote the total search costs and $C_k = f(k,n) - f(k-1,n)$ denote the marginal costs of increasing the length of the short list from $k-1$ to k. The marginal increase in the expected value of the applicant hired when the length of the short list increases from $k-1$ to k is denoted by M_k, i.e., $M_k = V_k - V_{k-1}$, where $V_k = \max_{1 \leq i \leq k} W_k$.

The following theorem comes from Ramsey [10]:

Theorem: *The optimal length of the short list, k^*, satisfies the following condition:*

i) when $M_2 \leq C_2$, then the optimal strategy is to automatically accept the object with initial ranking 1, i.e., $k^* = 1$ and no interviews take place.

ii) *if the above condition does not hold, then k^* is the largest integer k, such that $k \leq n$* and $M_k > C_k$.

This theorem results from the fact that the marginal gains from increasing the length of the short list are non-increasing in *k*, while the marginal costs are non-decreasing in *k*.

3. Results of Simulations

Suppose X_1 comes from the normal distribution with mean zero and standard deviation one. We consider signals X_2 that come from the following distributions: a) the normal distribution with mean 0 and standard variation σ, b) the exponential distribution with mean σ, c) the uniform distribution on the interval $\left[0, \sigma\sqrt{12}\right]$, d) the Pareto distribution with minimum value 1 and standard deviation σ. Note that these distributions all have the same standard deviation. The tail index, α, of the Pareto distribution can be calculated numerically from the formula for the variance of a Pareto distribution with minimum value 1, i.e.,

$$\sigma^2 = \frac{\alpha}{(\alpha-1)^2(\alpha-2)} \quad (1)$$

The values of σ considered come from the set $\left\{\frac{1}{5}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}, 1, 2, 3, 4, 5\right\}$. The greater the value of σ, the greater the proportion of the variance of the value of an applicant explained by the information gained from the interview. For a given σ, Equation (1) has a unique solution, which was estimated using the uniroot procedure in the R package (see Brent [12]). The appropriate values of the tail index are given in Table 1. From the assumptions regarding the reward from search, shifting these distributions without changing the shape (i.e., variance) of the distribution only shifts the expected reward from search by the same value. Hence, any differences in the optimal lengths of the short lists result from the shapes of the distributions.

The uniform distribution is symmetric with no tail. The normal distribution is symmetric with a weak tail. Both the exponential and Pareto distributions are right-skewed and the Pareto distribution has a heavy tail.

The employer interviews the best *k* applicants according to X_1 (i.e., the initial ranking) and then offers the position to the interviewee with the highest value of $X_1 + X_2$. The search costs for initial inspection and maintanence of the short list are $f_1(k,n) = 0.0001(n + k^2)$ and the costs of closer inspection are $f_2(k) = c\sigma$, where $c \in \{0.02, 0.05, 0.1\}$. These cost parameters reflect the logic that the costs of collecting applications are low relative to the costs of interviewing. The costs of interviews are assumed to be proportional to the standard deviation of the second signal. Under such an assumption, in sequential decision problems where the employer makes decisions based purely on the second signal, in the cases of the normal, exponential and uniform distributions the expected number of applicants that are seen under the optimal policy is independent of σ (this property will be called scale independence). In the case of the exponential distribution the expected number of applicants seen is $1/c$ (such

strategies can be derived via dynamic programming, see Ross [13]). For the range of parameters investigated, when the values of applicants come from the Pareto distribution, then the expected number of of applicants seen under the optimal strategy in such sequential decision problems is greatest when the variance is close to 1. The expected number of applicants seen is greater than $1/c$ (particularly for low values of c), unless both c and σ are large.

Table 1. Standard deviations of signals from the Pareto distribution and the corresponding tail index

σ	α	σ	α
$1/5$	6.928352	2	2.329480
$1/4$	5.916387	3	2.175033
$1/3$	4.899689	4	2.107403
$1/2$	3.875130	5	2.072118
1	2.839287		

Source: Evaluated numerically using the uniroot procedure in the R package

The optimal length of the short list for each problem was obtained empirically on the basis of 100.000 simulations, written in the R language, of the search procedure when the number of offers $n \in \{20, 50, 100, 200\}$. These empirically obtained optimal lengths of short lists are described in Tables 2, 3 and 4 (for low, medium and high costs of interview, $c = 0.02, c = 0.05$ and $c = 0.1$, respectively). The results are given in increasing order of the strength of the tail of the distribution: uniform, normal, exponential, Pareto.

Table 2. Optimal lengths of short lists according to the distribution of the second signal for low interview costs (c =0.02). The entries in each cell correspond to following distributions in order: 1 – uniform, 2 – normal, 3 – exponential, 4 – Pareto. The first signal has a standard normal distribution

	n = 20	n = 50	n = 100	n = 200
σ = 1/5	(2, 2, 3, 3)	(3, 3, 4, 4)	(3, 3, 4, 4)	(3, 3, 4, 6)
σ = 1/4	(3, 3, 3, 4)	(4, 3, 4, 6)	(3, 3, 5, 6)	(3, 3, 5, 6)
σ = 1/3	(3, 3, 5, 7)	(4, 4, 5, 7)	(3, 4, 6, 9)	(4, 5, 8, 11)
σ = 1/2	(4, 5, 7, 8)	(5, 5, 8, 15)	(5, 6, 11, 15)	(5, 5, 11, 19)
σ = 1	(5, 6, 13, 19)	(6, 7, 20, 32)	(6, 9, 22, 41)	(7, 9, 20, 44)
σ = 2	(7, 10, 19, 19)	(8, 11, 29, 49)	(8, 14, 29, 60)	(8, 14, 32, 66)
σ = 3	(8, 12, 19, 19)	(9, 15, 31, 47)	(9, 16, 34, 56)	(10, 18, 36, 65)
σ = 4	(8, 14, 19, 19)	(9, 15, 34, 35)	(9, 16, 40, 44)	(10, 18, 40, 44)
σ = 5	(10, 14, 19, 18)	(10, 16, 34, 35)	(10, 17, 39, 41)	(10, 19, 40, 40)

Source: Results of simulations written in R by the author

Table 3. Optimal lengths of short lists according to the distribution of the second signal for medium-sized interview costs (c =0.05). The entries in each cell correspond to following distributions in order: 1 – uniform, 2 – normal, 3 – exponential, 4 – Pareto. The first signal has a standard normal distribution

	n = 20	n = 50	n = 100	n = 200
σ = 1/5	(2, 2, 3, 2)	(2, 2, 3, 3)	(2, 2, 3, 3)	(2, 2, 3, 3)
σ = 1/4	(2, 2, 3, 2)	(3, 2, 3, 3)	(2, 2, 4, 4)	(3, 3, 4, 4)
σ = 1/3	(3, 3, 3, 4)	(3, 3, 4, 4)	(3, 3, 4, 4)	(3, 3, 4, 5)
σ = 1/2	(3, 3, 4, 4)	(3, 4, 5, 7)	(3, 4, 6, 8)	(4, 4, 6, 9)
σ = 1	(4, 4, 8, 9)	(4, 5, 9, 11)	(5, 5, 11, 13)	(5, 6, 10, 14)
σ = 2	(5, 6, 12, 9)	(5, 7, 13, 13)	(6, 7, 14, 16)	(6, 7, 15, 16)
σ = 3	(6, 7, 14, 9)	(6, 8, 13, 9)	(6, 8, 14, 13)	(6, 8, 15, 16)
σ = 4	(6, 7, 16, 8)	(6, 8, 17, 7)	(6, 8, 18, 11)	(7, 8, 17, 9)
σ = 5	(6, 8, 16, 5)	(6, 8, 16, 5)	(6, 9, 18, 9)	(7, 9, 18, 7)

Source: Results of simulations written in R by the author

Table 4. Optimal lengths of short lists according to the distribution of the second signal for high interview costs (c=0.1). The entries in each cell correspond to following distributions in order:
1 – uniform, 2 – normal, 3 – exponential, 4 – Pareto. The first signal has a standard normal distribution

	n = 20	n = 50	n = 100	*n = 200*
σ = 1/5	(2, 2, 2, 2)	(2, 2, 2, 2)	(2, 2, 2, 2)	(2, 2, 2, 2)
σ = 1/4	(2, 2, 2, 2)	(2, 2, 2, 2)	(2, 2, 2, 2)	(2, 2, 3, 2)
σ = 1/3	(2, 2, 2, 2)	(2, 2, 3, 2)	(2, 2, 3, 3)	(2, 2, 3, 3)
σ = 1/2	(2, 2, 3, 3)	(2, 3, 3, 3)	(3, 3, 4, 4)	(3, 3, 4, 3)
σ = 1	(3, 3, 5, 3)	(3, 3, 5, 4)	(3, 4, 5, 5)	(3, 4, 6, 6)
σ = 2	(4, 4, 6, 3)	(4, 4, 7, 4)	(4, 4, 8, 5)	(4, 5, 7, 4)
σ = 3	(4, 4, 7, 3)	(4, 5, 8, 3)	(4, 5, 8, 3)	(4, 5, 8, 3)
σ = 4	(4, 5, 7, 2)	(4, 5, 8, 2)	(4, 5, 9, 2)	(5, 5, 9, 2)
σ = 5	(4, 5, 9, 1)	(4, 5, 8, 1)	(4, 5, 9, 1)	(5, 5, 8, 1)

Source: Results of simulations written in R by the author

4. Conclusions

The qualitative form of the relationship between the optimal length of the short list and the parameters of the search problem are very similar for the uniform, normal and exponential distributions. Of these three distributions, the longest and shortest optimal lengths of short lists are observed for the exponential distribution and uniform distribution, respectively. Also, the strength of the relationship between the parameters of the search problem and the optimal length of the short list become stronger as the strength of the tail increases (i.e., is strongest in the case of the exponential distribution). The optimal length of the short list is clearly decreasing in the relative costs of interviews and increasing in the standard deviation of the second signal (a measure of the relative amount of information gained from the interview).

The relationship between the total number of candidates and the optimal length of the short list is positive, but very weak (excluding the very few cases in which the employer should essentially carry out exhaustive search of a relatively small number of candidates -when c is small and the second signal comes from the exponential distribution).

The relation between the optimal length of the short list and the parameters of the search problem are more complex in the case of the Pareto distribution (it should be noted that this is the only one of the four distributions that does not satisfy the scale independence condition).

As in the case of the other distributions, the optimal length of the short list is very weakly positively related with the total number of applicants (excluding the cases of exhaustive search of a relatively small number of candidates). However, the relationship between the relative amount of information gained from the interview and the optimal length of the short list is more complex. The largest optimal lengths of short lists are obtained for intermediate values of σ. When the relative costs of interview are low, then longer short lists should be used than for the other three distributions. However, when the relative costs of interview are high and the relative amount of information gained from the interview is high, then the optimal length of short lists is shorter than in the case of the other three distributions.

Of course, in practice, employers do not know how many job seekers will apply for a position, nor the distribution of the value of job seekers. However, the results of this research suggest that strategies based on short lists may be highly effective in real-life situations. Short lists are appropriate when an employer expects a relatively large number of appropriate applications. This is likely to be the case for middle management positions. In such a case, we do not expect great skewness in the distribution of the abilities of the candidates (as visible in the applications and interviews). In this case, the optimal length of a short list is only very weakly dependent on the number of applicants. Secondly, when the amount of information about an applicant gained from an interview is comparable to the amount of information

gained from a written application (i.e., $\sigma = 1$), then in the case of non-skewed distributions, the length of the short list is moderate (between 3 and 9) over a wide range of interview costs.

Hence, the rule of thumb "invite four or five applicants for interview" might be a near-optimal heuristic for such problems. However, since data is becoming every more available and computation ever cheaper, further research into adapting strategies based on short lists to the parameters of the search problem should give further insight into effective heuristics of this form.

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REFERENCES

[1] Simon, H. A. (1955). A behavioural model of rational choice. The Quarterly Journal of Economics 69(1), pp. 99-118.
[2] Simon, H. A. (1956). Rational choice and the structure of the environment. Psychological Review 63(2), p. 129.
[3] Todd, P. M. and Gigerenzer, G. (2000). Précis of simple heuristics that make us smart. Behavioural and Brain Sciences 23(5), pp. 727-741.
[4] Bobadilla-Suarez, S. and Love, B. C. (2018). Fast or frugal, but not both: Decision heuristics under time pressure. Journal of Experimental Psychology: Learning, Memory, and Cognition 44(1), p. 24.
[5] Masatlioglu, Y., Nakajima, D. and Ozbay, E. Y. (2012). Revealed attention. American Economic Review 102(5), pp. 2183-2205.
[6] Lleras, J. S., Masatlioglu, Y., Nakajima, D. and Ozbay, E. Y. (2017). When more is less: Limited consideration. Journal of Economic Theory 170, pp. 70-85.
[7] Borah, A. and Kops, C. (2019). Rational choices: an ecological approach. Theory and Decision https://doi.org/10.1007/s11238-019-09689-5
[8] Armouti-Hansen, J. and Kops, C. (2018). This or that? Sequential rationalization of indecisive choice behaviour. Theory and Decision 84(4), pp. 507-524.
[9] Analytis, P. P., Kothiyal, A., Katsikopoulos, K. (2014). Multi-attribute utility models as cognitive search engines. Judgment and Decision Making 95, pp. 403-419.
[10] Ramsey, D. M. (2019). Optimal Selection From a set of offers using a short list. Submitted to Multiple Criteria Decision Making.
[11] Yoon, K. P. and Hwang, C. L. (1995). Multiple Attribute Decision Making: An Introduction. Sage Publications, Thousand Oaks, CA.
[12] Brent, R. (1973). *Algorithms for Minimization without Derivatives.* Prentice-Hall: Englewood Cliffs, NJ.
[13] Ross, S. M. (2014). Introduction to stochastic dynamic programming. Academic press, Cambridge, MA.

Eco-Economic Decoupling, DeGrowth and A-Growth. Quo Vadis?

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1. Introduction

The term "Sustainable development" is often used in a wide range of contexts. An unanimously accepted definition of it reveals it as a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The United Nations through the 17 SDGs stress that it is crucial to harmonize economic growth, social inclusion and environmental protection in order to achieve sustainable development.

These elements are interconnected, so the UN [1] and are all crucial for the well-being of individuals and societies. The question that arises what the connections between these elements are and how these works.

We cannot argue that economic growth isn't inherently linked to natural resources. The main question is how can we deal with this connection in a constructive manner. Within this chapter we will primarily consider the link between economic growth and nature, connection studied by several contemporary authors with a wide range of approaches.

2. Findings

Probably the most commonly met conception in economics and politics nowadays is the decoupling-theory. An increase in gross domestic product is considered by the mainstream economics to be the engine of social development. This goal however, traditionally conflicts with preserving our natural resources. The decoupling – concept relies on the feasibility of reducing the negative impact on the environment while achieving economic growth [2-4].

Environmental protection and economic growth can be reconciled: the economy can grow while at the same time energy consumption, resource consumption and emissions are reduced.

The technical progress – innovations in products and processes – makes this possible.

This viewpoint has strong supporters like the United Nations Environment Program and the EU Commission. It also reflects in the jargon of most political programs worldwide with expressions like "intelligent growth", "green growth", "qualitative growth" or "sustainable growth". This school of thought cannot conceive development without growth and points out the advantages of green growth in a context in which economy and ecology are not conflicting.

Another perception regarding this link belongs to the supporters of the degrowth theory.

The birth of the word "décroissance" (French for degrowth) and thus the origin of an idea can be dated back to the year 1972. The social philosopher André Gorz questioned back then whether the ecologic balance is compatible with the survival of the capitalist system. He assumes zero growth or even a decrease in growth of material production to be a necessary prerequisite for the "balance". Subsequently the Club of Rome released *The Limits of Growth*, publication which gave birth to a series of public discussions especially in France. Nicholas Georgescu-Roegen, considered to be a pioneer of ecological economics took part in this

discussion. Later he argued that because of the entropy law all-natural resources are irreversibly degraded when put to use in economic activity. With the end of the oil crisis and the spread of neoliberalism, discussions faded into the background in the 1980s and 1990s.

This millennium the concept of degrowth gained attention again, starting in France and developing to Spain (Catalonia) and Germany (especially the former Democratic Republic of Germany Sates). Followers and critics of the concept are meeting in yearly conferences, over 100 scientific papers in scientific journals and numerous books in various languages concerning this topic were published. Degrowth also became a topic in some universities, in TED-talks and in press articles [5, 6].

A more contemporary approach is the so called "a-growth"-paradigm. This conception is represented by "growth agnostics", who value rather the social progress instead of growth itself and present several alternative compound indicators, different than GDP to evaluate societal progress [7-9]. The most recent editorial success belongs to the "growth-agnostic" Kate Raworth. In her eponymous book, "The Donut Economy" [10], the doughnut stands for an economic policy goal suitable for the 21st century: "To meet the needs of all people within the planet's borders. Economic growth was yesterday. Donut is today." The outer circle of the donut marks the ecological limits that we must not exceed: climate change, biodiversity loss, soil erosion. The inner circle represents the social foundation: access to food and water, political participation, personal security – which should be sufficient. With the donut, Raworth succeeds in creating a memorable image that consistently links humans with nature, the social with the ecological aspects. The subsequent image presents the Doughnut.

Fig. 1. The Doughnut of social and planetary boundaries (2017)
Source: https://www.kateraworth.com/doughnut/

3. Discussion

In the first conception under discussion, technological development is seen as a driver of economic progress. Innovations allow the decoupling of economic growth from

environmental impact up to a certain limit. This process partially is compromised by the occurrence of rebound effects. In more recent debates on environmental policies, the strategy of degrowth has been taken into consideration as an alternative to the paradigm of economic growth. This relatively new notion however is not unitary defined, multiple interpretations making it an ambiguous concept.

Nevertheless, degrowth and a-growth debates brought economic growth and ecology back into academic discussion. Literature on the topic on degrowth, with few exceptions, has mainly concentrated on theoretical studies, neglecting actual policy recommendations [11].

Degrowth as an equitable downscaling of production and consumption is expected to reduce societies' throughput of energy and raw materials. "However, the shift should not only entail a smaller social metabolism, but more importantly a society with a metabolism that has a different structure and serves new functions." [12] The objectives of this current of thought are quite clear, it is however missing some implementation solutions [13].

More recently Berg and Hukkinnen [11] performed a narrative policy analysis related to edgrowth in Finland. They found that it is common even among business and ministry representatives to criticize the current growth-bound economic system. This critique however, only increases uncertainty and complexity in the policy field. This on the other hand, paradoxically, leads to a strengthening of the dominant growth strategy. They suggest that constructing a complete degrowth story is essential for supporting democratic deliberation on sustainability. The efficiency and efficacy of this construction is however questionable.

Since GDP (per capita) is an imperfect indicator of social welfare "a-growth," seems to be a more logical social aim to substitute for the current goal of economic growth. Strategically seen it is more likely to obtain political support for a public policy independent of growth as compared to an explicit degrowth strategy. In line with this van den Bergh [14] proposes a policy package which consists of six elements:

According to van den Bergh, the following actions would be worth considering from an agrowth-perspective:

Education: more systematic attention to information regarding the shortcomings of GDP.

Mass media & policy circles: interrogate the preoccupation with growth so as to overcome the automatism with which many give priorities to growth.

Developing countries: make political leaders of these aware that a growth strategy facilitates a trade-off between less growth in rich countries and development with growth in poor countries.

International Economic Org (IMF, OECD, World Bank): Put pressure to accept a shift to a growth-neutral paradigm (they already use ambiguous notions such as 'beyond GDP' and 'beyond growth').

Politicians: Convince them to avoid disappointment and economic instability by soothing excessive growth expectations that are often not met.

Public debate: "relevance and means of stepping outside the unproductive pro-growth versus anti-growth frame."

Raworth also presents a comprehensive program on how economics and the economy as a whole must change. Her strength is the power of images: one by one, she takes apart the images of today's economics: exponential growth, the Kuznets curve, the Homo economics, the equilibrium. She also points out alternatives, asks new questions and underpins both theory and practice. She calls for three fundamental adjustments in economics:

1. Put goals and motivations first – despite the criticism of the shortening of economic models and their apparent weakness in understanding economic crises, economics has hitherto vehemently opposed reform. This not only applies to politics, but also to study programs. Highly motivated students are demotivated by 20 century approaches neglecting current problems which need solving.

2. Understand complexity – the author joins this call for more normative reflection with the demand that the economy should finally be seen as what it is: a complex dynamic system.
3. Ask other questions – Raworth contrasts the fictional "market balance" that often leads to market concentration rather than diversity, to the "subtle balance" of efficiency and resilience: too much concentration means instability, too little leads to inefficiency. Her plea: Prevent the concentration of wealth by diversifying ownership – of land, money creation, labour, robots and ideas.

Her theory relies on the power of students, progressive politicians and sustainable businesses. But it neglects the other side, the profiteers of the system. This applies for science and the economy alike: Be it professors who have made careers with the theories of the 20th century, or large corporations that secure their energy needs through an infrastructure based on fossil fuels.

REFERENCES

[1] United Nations *the Sustainable Development Agenda*, https://www.un.org/sustainabledevelopment/development-agenda/

[2] UNEP (2011) *Decoupling natural resource use and environmental impacts from economic growth, A Report of the Working Group on Decoupling to the International Resource Panel.* Fischer-Kowalski, M., Swilling, M., von Weizsäcker, E.U., Ren, Y., Moriguchi, Y., Crane, W., Krausmann, F., Eisenmenger, N., Giljum, S., Hennicke, P., Romero Lankao, P., Siriban Manalang, A., Sewerin, S. ISBN: 978-92-807-3167-5.

[3] UNEP (2014) *Decoupling 2 technologies, opportunities and policy options. A Report of the Working Group on Decoupling to the International Resource Panel* von Weizsäcker, E.U., de Larderel, J, Hargroves, K, Hudson, C, Smith, M, Rodrigues, M. ISBN 978-92-807-3383-9.

[4] UNEP (2016) *Global Material Flows and Resource Productivity. An Assessment Study of the UNEP International Resource Panel.* H. Schandl, M. Fischer-Kowalski, J. West, S. Giljum, M. Dittrich, N. Eisenmenger, A. Geschke, M. Lieber, H. P. Wieland, A. Schaffartzik, F. Krausmann, S. Gierlinger, K. Hosking, M. Lenzen, H. Tanikawa, A. Miatto, and T. Fishman. Paris, United Nations Environment Programme. ISBN: 978-92-807-3554-3

[5] https://www.degrowth.info/

[6] https://degrowth.org/

[7] van den Bergh J., Miklós A., (2014) *Evaluating Alternatives to GDP as Measures of Social Welfare/Progress*, WWWforEurope Working Papers series 56.

[8] van den Bergh J.C.J.M. (2011) *Environment versus growth: A criticism of "degrowth" and a plea for "a-growth"*, Ecological Economics. 70 (5): pp. 881-890.

[9] Stiglitz, J. E., Amartya, S., Fitoussi, J.-P. (2010) *Mismeasuring Our Lives: Why GDP Doesn't Add Up: The Report*, New York.

[10] Raworth, K. (2017) *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*, Chelsea Green Publishing.

[11] Berg, A., Hukkinen, J. I. (2011) *The paradox of growth critique: Narrative analysis of the Finnish sustainable consumption and production debate*, Ecological Economics Volume: 72, pp. 151-160.

[12] Mastini, R. (2017) *Degrowth: the case for a new economic paradigm*, OpenDemocracy, https://www.opendemocracy.net/riccardo-mastini/degrowth-case-for-constructing-new-economic-paradigm

[13] Pesch, U (2018) *Paradigms and paradoxes: the futures of growth and degrowth*, International Journal of Sociology and Social Policy, Volume: 38, Issue: 11-12, Pages: 1133-1146, DOI: 10.1108/IJSSP-03-2018-0035

[14] van den Bergh J. C. J. M. (2017) *A third option for climate policy within potential limits to growth*, Nature Climate Change volume 7, pp. 107-112.

Central Banking and the Clash of Interventionist Policies. The Case of Romania

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1. Introduction

The mainstream theory of economic systems focuses on three types of systems, based on tradition and "communal expressions of approval or disapproval", on centrally planned economies (socialism) and market economies (capitalism) [1]. Yet, there is another economic system, interventionism (widely discussed by Ludwig von Mises in several of his books), better known as mixed economy, in which government interferes with market activities.

Government involvement in the economy can take the form of regulatory actions, social welfare programs, state ownership or planning and, in combination with market principles of private contracting, leads to a mixed economy [2]. Basically, "interventionism seeks to guide the market process" [3].

Although independent from other government public policies, monetary policy can be considered a form of state intervention. High-powered money production is the single economic activity in the hands of a centralized monopoly, the central bank. The monetary authority, usually a state-owned institution or even part of the government, manages the creation of base money, influences interest rates and foreign exchange rates and decides who to bail out and when.

Monetary competition between coin producers and banks issuing paper money was once the rule of the game. But the famous debates between the Monetary School and the Banking School of the 19th century ended with a monopoly in favour of the Bank of England and led to most of the common functions of a monetary authority/central bank today [4]. Bagehot's 1873 book, Lombard Street: A description of the Money Market, portrayed the roles of a central bank. Thus, modern central banking has its foundations in the 19th century Bank of England.

At the beginning of the 20th century, state regulations favouring a centralized monetary system managed by a monopolist central bank had prevailed and 18 central banks were operating in this way in the world [5]. The First World War meant that central banks became instruments for their governments, issuing money in order to finance the Great War, even tough they were privately (not state-) owned. The severe economic consequences of the inflationary monetary policies during that time provided reasons to bring forth at the Genoa Peace Conference the idea of autonomous central banks, separated from government, and the concept of independent monetary policy was promoted even in textbooks [6]."Because the belligerent governments used their central banks as the instruments of their inflationary finance, the conclusion was widely drawn that a sound monetary policy was only likely to be pursued if the independence of the central bank as against the government was in some way guaranteed. […] The prevailing view with regard to the status of central banks was applied in Europe in the reconstruction schemes undertaken by the League of Nations. Outside Europe it was applied by Professor Kemmerer in his various missions – extending literally from China to Peru. (pp. 42-43)" [6].

Unfortunately, the Great Depression of 1929-1933 was mitigated with more government intervention, governments gained control over monetary policies, central banks were asked to clearly define their role as lender of last resort, intervene in markets and, after the Second World War, they were nationalized [7]. This approach was favoured by the surge of socialism, interventionism and Keynesianism. The institution of central banking proliferated, from 59 central banks in 1950 to 161 by 1990, as a result of decolonization and fall of communism. In 2017 one can find 166 such institutions in the world, all state-owned banks, except for the Federal Reserve in the United States [8].

The following sections will briefly explain the consensus reached in present times regarding central banking and the concept of central bank independence, and then focus on the National Bank of Romania (NBR)'s monetary policy actions put under political pressure by the latest public policies of a social-democrat, populist, government.

2. Central Bank Principles and Practices in Our Day

As mentioned before, the Second World War was followed by a surge in interventionist policies meant to rebuild the economy after the disaster caused by war. Keynesian theory became mainstream and advanced countries increased their public spending, placing budgetary and fiscal policy in the centre of these state interventions, with monetary policy backing them. This trend led to high inflation around the world, even coupled with high unemployment rates (the so-called stagflation), as opposed to Keynesian expectations that public spending and money supply increase should have determined a fall in unemployment.

As a result, policy makers had to solve the problem of the 1970s inflation. The solution came from central bankers and scholars working together and acknowledging the benefits of monetary policy operated separately from fiscal policy, as rules of policy are better than discretionary actions taken by government. As a consequence, a period of macroeconomic stability known as the Great Moderation followed during the mid-1980s, 1990s and 2000s.

Central banks are the only suppliers of base currency, regulate de banking system and lend money to commercial banks, consequently influencing market interest rates, hold their reserves and the country's international reserves, and play the role of lender of last resort.

They are the monetary authority and, at the same time, the state's bank and a bank for banks [8]. Even the Great Recession of the late 2000s didn't change the good practices of monetary policy that prevailed in the last two decades, that is central bank independence, price stability as primary objective and inflation targeting as monetary policy strategy [9] [10].

Maintaining price stability is considered nowadays a contributor to the overall welfare of society and experience has showed that targeting the inflation rate is an efficient strategy.

Most central banks use their monetary policy instruments for this purpose [8]. But in advanced countries, this policy option has been complemented by the practice of central bank independence, meaning that monetary policy is operated separately from fiscal policy, without government interference or without political influence. Independence for central banks can be defined as the "right to change the operating variable without a challenge from or a consultation with government" [5].

These principles and practices of central banking have been promoted in the last century by a "transnational central banking community" holding monopoly on recognized expertise. At the end of the 20th century, the community exported the above-described model to the post-communist countries, providing social and material incentives. Governments were pressured to harmonize their central banks' independence and central bank practices with European Union (EU)'s standards and accession requirements [10].

3. The National Bank of Romania's Policy Stance in Conflict with Government Actions

The National Bank of Romania made no exception. It had to meet EU standards and the requirements of the transnational community in becoming a modern central bank. For this reason, several laws were adopted in order to modify NBR's activity and status, in January 1991, May 1998 and June 2004. These changes contributed each time to increased central bank independence [8].

The absence of NBRs autonomy in the first decade after the fall of communism was decisive: government spending lacked fiscal discipline and the central bank was pressured to finance public deficits, resulting in high inflation. NBR managed to control inflation after the last changes to its legal status in 2004, when it gained higher independence from the executive branch of government and introduced the strategy of inflation targeting in August 2005.

Although maintaining price stability is NBR's primary objective, the last decade showed that managing the exchange rate seems to be the focus of Romanian monetary policy [8].

The latest developments show an inflation rate that doesn't seem to be targeted at all (Figure 1). Monetary policy reference rate (Figure 2) has been on a constant decline, even though high inflation would have asked for an increased reference rate. NBR augmented the rate starting with January 2018, when deflation gave signs of being overturned by growing government expenditure (pursuing especially higher wages in the public sector and higher pensions) but also by higher excises locally and higher international prices for commodities.

According to Eurostat, the Romanian government spent 49.7 billion euros in 2012, 51 billion euros in 2013, 53,3 billion euros in 2014, 58 billion euros in 2015, 59,4 billion euros in 2016 and 63,1 billion in 2017. Public expenditure in 2018 will most certainly exceed the previous year's numbers. Plus, the monetary aggregate M1, cash and overnight deposits, registered an overall ascending trend, without any relation to inflation (Figure 1).

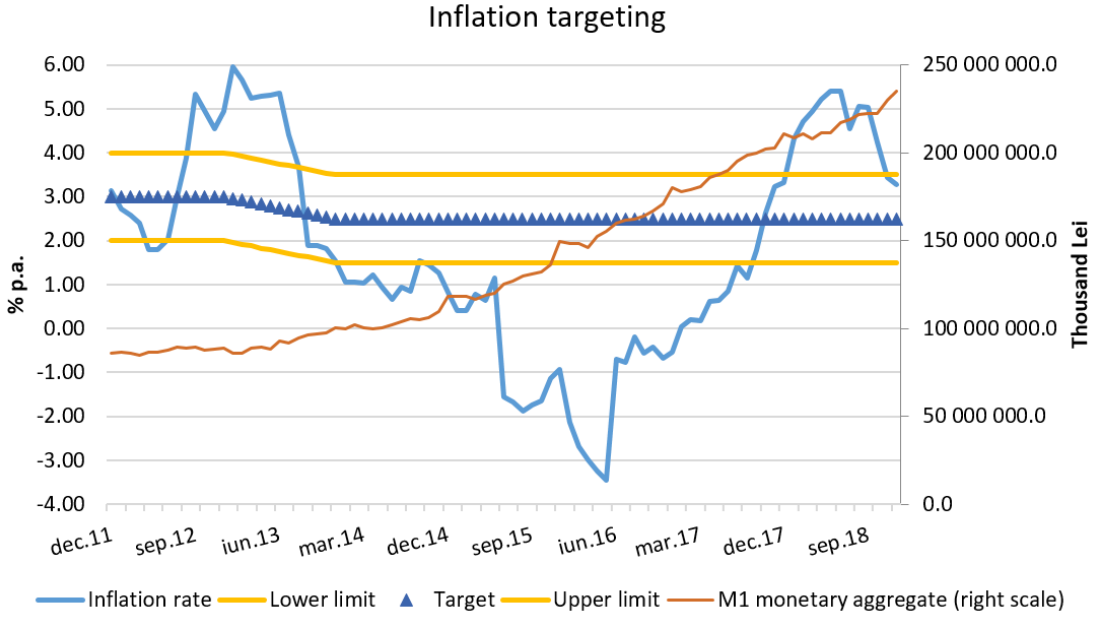

Fig. 1. Inflation targeting
Source: author's work based on NBR data

Increased public spending and unsustainable fiscal policy, alongside unpredictable policies and government actions have put pressure on the central bank not only in fighting inflation,

but on the exchange rate regime of managed float as well. NBR has many times intervened to stabilize the exchange rate in the past, thus the variability of the RON/EUR below in Figure 3.

In the last couple of months, politicians and government officials have publicly called for the National Bank of Romania to influence the exchange rate, even though market quotations and regional evolutions point to a need of depreciation against the euro.

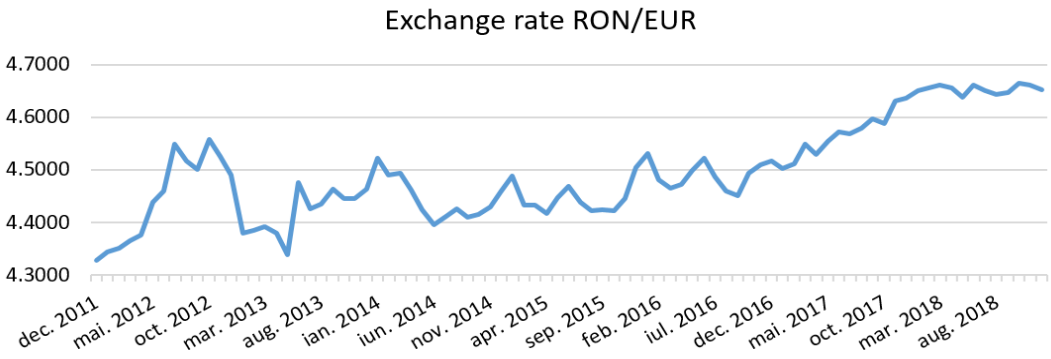

Fig. 2. Monetary policy reference rate (% p.a.)
Source: author's own work based on NBR data

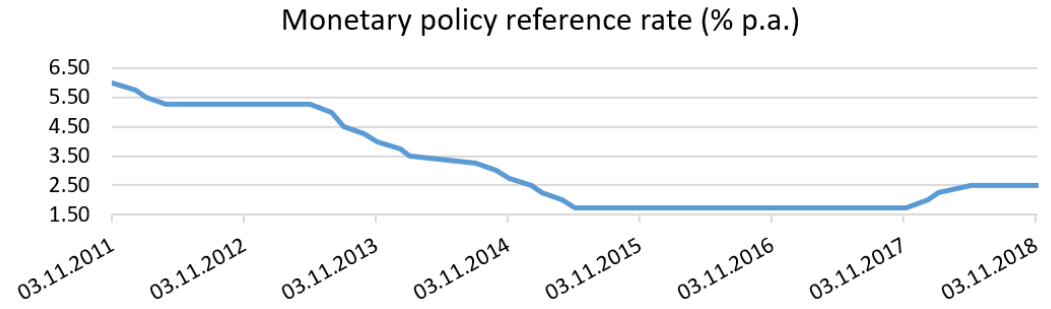

Fig. 3. Exchange rate RON/EUR
Source: author's own work based on NBR data

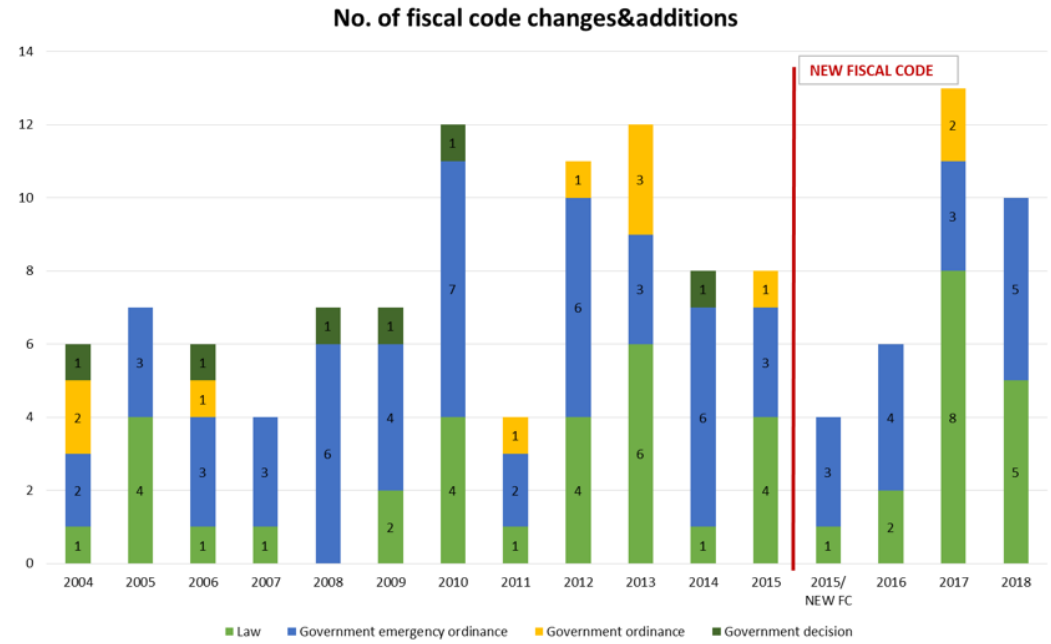

Fig. 4. Number of fiscal code changes and additions
Source: author's own work based on Romanian Chamber of Deputies data

Political instability has been relevant to such evolutions: Romania had 4 prime-ministers (including interims) in 2012, 4 different prime-ministers (including interims) in 2015, 2 prime-ministers and different governments in 2017 and 2 prime-ministers (including interims) in 2018, all under social-democrat parliamentary majority. Moreover, many of the fiscal changes affecting the business environment and prices evolution have been adopted using government emergency ordinances, taking the private sector totally by surprise (Figure 4).

The latest government emergency ordinance changing the fiscal code in late December 2018, not yet passed through Parliament (as of February 2019) is intended to regulate a sector of the economy overseen by the National Bank of Romania. It establishes a so-called greed tax on bank assets and links it to ROBOR levels (the interbank interest rate). Government officials and social-democrat leaders, dissatisfied with high ROBOR levels, have accused the banking sector of manipulating ROBOR under the eyes of NBR and have called for NBR to change the way ROBOR is computed. Figure 5 shows that ROBOR levels have been at higher levels in the past, leading to the conclusion that the government's concerns are quite exaggerated. But greater public expenditures are being financed through public debt and ROBOR influences the borrowing costs and appetite for government bonds, as well as the bank instalments being paid by voters. One can understand why the pressure on the central bank and banking sector to lower the costs, as the government intends to pay greater wages and pensions by borrowing money.

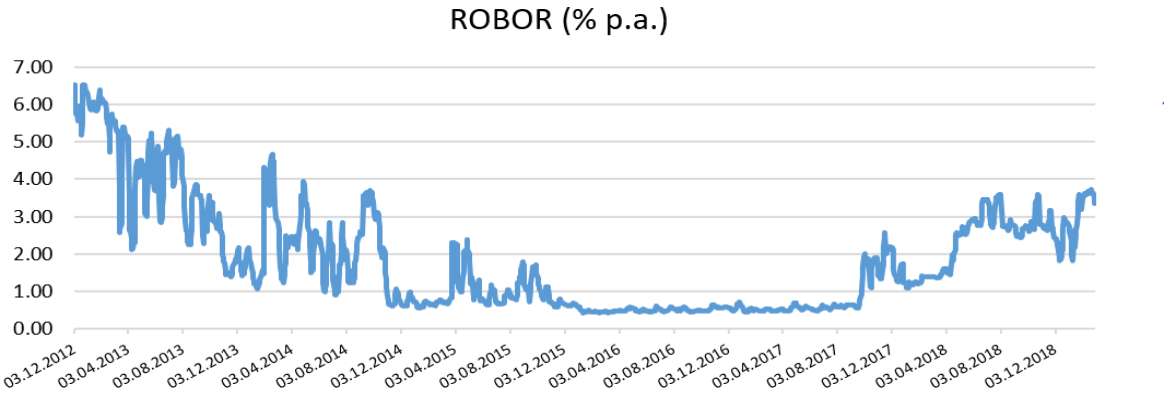

Fig. 5. ROBOR interbank interest rate (% p.a.)
Source: author's own work based on NBR data

Another recent media statement of the social-democrat leaders politically pressuring the NBR pointed to the need of repatriating the gold reserves currently deposited at the Bank of England [11]. Both the provisions of the government emergency ordinance affecting the banking sector and the decision to move the gold reserves back to Romania are hampering the central bank's autonomy from politics. Additionally, these decisions cannot be taken without first consulting with the European Central Bank. The latter constantly assesses and supervises that the independence criteria is being fulfilled by NBR.

4. Conclusion

Monetary policy can be regarded as one type of state intervention in the economy, by monopolising currency issues and influencing interest rates and banking activities. The current mainstream consensus is that the central bank operating this policy should be independent from other branches of government and should maintain price stability through inflation targeting. This was not always true, as for many decades monetary policy was subordinated to fiscal policy causing, in the end, unwanted inflation. A transnational

community of central bankers, with the European Central Bank being one of the promoters, exported the model of independent central bank to post-communist countries, Romania included.

The Romanian monetary authority has been putting to use the need to fulfil EU standards since 2004. But in recent developments it didn't seem to pursue its main objective of price stability, and being independent did not necessarily look as an essential feature. The importance of central bank independence emerged only after politicians started to put pressure on the private sector and on NBR in order to promote unfounded public spending and interventionist measures.

The National Bank of Romania is an exceptional case-study, as it has the most long-lived central bank Governor in the world (28 years in office and still working). His mandate and that of the Board of Directors will end in October 2019 and Parliament will be appointing new members in charge of the monetary authority. In line with EU requirements, the central bank is legally independent from government. But Parliament is being controlled by the same leaders that control government. Populist promises of better wages and pensions, meaning excessive public spending, financed through new taxes and public debt are endangering NBR's autonomy. As shown in the previous sections, the policies adopted through government emergency ordinance, without any consultation with stake holders or other public institutions have consequences, not only for the private sector, but for the central bank – government relationship as well.

REFERENCES

[1] Boettke, P., & Heilbroner, R. (2018). Economic system, Encyclopædia Britannica, https://www.britannica.com/topic/economic-system, [Last accessed 25.02.2019].

[2] Young, G. (2017). Mixed economy, Encyclopædia Britannica, https://www.britannica.com/topic/mixed-economy, [Last accessed 25.02.2019].

[3] Richman, S. (2018). Fascism, The Library of Economics and Liberty, https://www.econlib.org/library/Enc/Fascism.html, [Last accessed 25.02.2019].

[4] Doroftei, I.M. (2013). The Lessons of the Currency School-Banking School Dispute for the Present Post-Crisis Economy, Procedia Economics and Finance, vol. 6, pp. 48-56.

[5] Capie, F. (1995). The Evolution of General Banking, Policy Research Working Paper 1534, The World Bank.

[6] Whale, P.B. (1939). Central banks and the state, Manchester School, vol. 10, no. 1, pp. 38-49.

[7] Siklos, P.L. (2002). The Changing Face of Central Banking: Evolutionary Trends since World War II, Cambridge: Cambridge University Press.

[8] Doroftei, I.M. (2017). Radiografia băncilor centrale. Evoluție și crize economice, "Alexandru Ioan Cuza" University Press, Iași

[9] Bean, C., & Paustian, M., & Penalver, A., & Taylor, T. (2010). Charles Bean: Monetary policy after the fall, BIS Review, no. 111.

[10] Johnson, J. (2016). Priests of Prosperity. How Central Bankers Transformed the Post-communist World, First Edition, Cornell University Press, Ithaca and London

[11] https://www.bloomberg.com/news/articles/2019-02-28/bring-back-our-bullions-romania-may-too-seek-to-pull-u-k-stash, [Last accessed 3.03.2019]

Data sources: NBR official website, http://www.bnr.ro/Seturi-de-date-628.aspx, Romanian Chamber of Deputies legislation database, http://www.cdep.ro/pls/legis/legis_pck.frame, and Eurostat database, https://ec.europa.eu/eurostat/data/database.

Economic Socialization as a Field of Behavioural Economics

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Keywords: Behavioural economics, economic socialization, financial socialization, consumer socialization

1. Introduction

The end of the twentieth century has made it clear to researchers that an interdisciplinary approach to economic problems can provide new knowledge. The assumptions on which the traditional theory of economics is based are unrealistic. R. Thaler notes, that people do not make decisions on the basis of objective premises. They make a lot of cognitive mistakes; they also have excessive self-confidence. Economic models omit the operation of a huge number of factors. Thaler postulates to enrich economic research in such a way as to take into account the importance of people [1]. As a result, contemporary economic and psychological theories combine. Economic psychology, which is a field from the borderline of psychology and economics, deals with the psychological processes underlying economic behaviour. It combines interest in various determinants of individual economic behaviour with the analysis of the impact of economics as a system on a macro scale on the functioning of the individual.

K. E. Warneryd on attempts to apply an interdisciplinary approach writes, that they can be classified as economic psychology or behavioural economics, which gives equal importance [2]. Behavioural economics deals with analysing human behaviour in economic matters. By analysing the socio-psychological mechanisms underlying economic behaviour, he deals with the creation of a real human model, unlike a rational economic homo. Behavioural economics aims to enrich economics by giving economic models a more realistic dimension by increasing its validity. This interdisciplinary approach borrows data from social and behavioural sciences and finds its application in economics [2].

The earlier stage of life called socialization plays an important role in the economic processes and other aspects of functioning in adult society. A. Roter states: “children of every age are a projection of its conservatism – belong to the previous era” [3]. This court shows the impact of generations of adults on their offspring. A. Roter reports that the process of socialization is one of the main determinants of the individual’s quality of life. Studies on this process are interdisciplinary, sociology and psychology show its multidimensionality. The chapter attempts to systematize the knowledge contained in the literature and concerning economic socialization. The authors aim to show its dimensions and problems, from the point of view of behavioural economics, which perceives this process as imperfect. The quality of economic socialization may depend on the quality of knowledge and behaviours presented by socialization actors, which in turn are variable in time and space. Different knowledge transfer skills, personal characteristics of actors favouring more or less economic socialization.

2. The Importance of Socialization

In sociology, sociology and pedagogy, socialization is perceived as a process of group-to-person interaction. F. Znaniecki, a sociologist, understands the process of growing into culture through socialization. The individual learns and adopts the tradition and cultural patterns that

determine the way he behaves. The result is the assimilation of it into the social environment and the creation of related habits, habits and attitudes [4]. P. Sztompka, also a sociologist, considers the process of socialization a process by which the individual implements the way of life of his group and the wider society. Thanks to socialization, the child becomes a social being and this process lasts throughout life. Socialization is a process during which individuals acquire the skills, knowledge, attitudes, values and themes currently relevant to the groups in which they are or aspire to [5]. J. Szczepański calls socialization the process of transforming a biological being into a social one [6].

M. Przetacznikowa, a psychologist, accentuates other aspects in the process of socialization. Socialization consists in moving from individual to group activities, performed jointly by a group of individuals. This applies to activities whose performance requires the presence of other people. Lack of socialization will become apparent when the individual refuses to act in a team that results from its social role [7]. This problem is developed by C. Kluckhohn and H. A. Murray [1949], who claim that as a result of socialization, the individual becomes "... able to establish satisfactory interpersonal relations within the legal and conventional model of society. When a child begins to behave in a predictable way, it has already entered a path that leads to socialization. [8]" Z. Skorny acknowledges that these desirable personality changes that take shape in the process of socialization are positive character traits that facilitate interpersonal intercourse. Lists the character traits associated with the relationship to other people (kindness, kindness, helpfulness, companionship) as well as with self-evaluation (modesty, self-esteem). In the process of socialization, character traits that facilitate work also take shape (compulsiveness, diligence, conscientiousness, punctuality). The author calls this desirable set of traits a "good character" and perceives it as the effect of a properly carried out process of socialization [8].

Z. Zaborowski denotes that socialization means a specific specification and the channelling of needs, that is, the implementation to satisfy them by means of goals recognized in specific social groups. Satisfying the need is controlled and regulated by specific social patterns internalized by the individual, occurring in the form of moral feelings and personal patterns [9]. The process of socialization can be viewed in a wider and narrower sense. In the broader sense, socialization will be all kinds of interactions, desirable and undesirable. Socialization will also take place when, under the influence of the environment shaping a specific subculture, the individual will undertake actions contrary to the values created by culture. In terms of the narrower, socialization will be the impact on the individual of the group representing a specific culture, causing the occurrence of socially desirable changes in the behaviour of the individual. Socialization takes place from the earliest experiences of the child, in school-age, in an adult and even an old man. It is the effect of the impact of the family and other social groups [8].

J. Ruszczyk Rygałło [10] takes up the problem of the timeliness of the perception of socialization. In traditional terms, it was the process of inheriting a stable hierarchy of values, during which the young person acquired the skills of proper functioning in the social environment in which he lived. The older generation, more experienced, gave the younger a pool of knowledge, views and universal values in a stable, orderly and predictable social world. The result of these socialization activities was a clearly defined man, fully accepting the existing conditions of social functioning, which is relatively easy to find in society.

During the last century, technological, social as well as cultural changes took place. At present, young members of the community are often faster than the older ones in acquire knowledge and principles of action and in this way, they become guides in the new reality. J. Ruszczyk-Rygałło states that the new social reality is characterized by the multidirectional and parallel nature of the spheres of activity and roles, of which none of them is dominant.

3. Economic Socialization

Socialization also takes place in an economic aspect. M. Goszczyńska defines economic socialization as all processes thanks to which a child is able to understand the surrounding economic world and learns to act in it [11]. Ch. R. Levy broadly describes economic socialization as a process involving the child's acquisition of knowledge, concepts, skills, opinions and attitudes, values and various elements of the economic system. It also includes the ability to make economic decisions. It is a whole change, thanks to which the ability to understand the surrounding world of economy is acquired. It usually refers to children and young people, but it can be applied to any person who is subject to some changes in the described area. But also, the evolving look of adults on the world of economy, when as a result of various economic events, roles that play in life change when they face problems of looking for a job, unemployment or retirement [12]. Economic socialization seems to be constantly expanding. Parents often want their children to have certain skills, for example computer literacy. A result is the participation of children in extracurricular activities with a wide range of interests, from sport to classes supporting intellectual development. A busy schedule of the day that does not allow themselves to discover the world on their own. In contrast, the parents of these children were, at their age, building blocks from blankets, using imagination and being creative [13].

Economic socialization includes the processes of entering a child into the role of a consumer (consumer socialization). It is also becoming a conscious dispatcher and possessor of funds (financial socialization). It will also include issues related to the assimilation of general principles of the functioning of the economy.

In terms of showing development and individual changes in the perception of economic life, the most important differentiating factor is age, which has shown a lot of research. The understanding of economic socialization as a process of economic maturation of an individual is considered by researchers as a process that includes both social and cognitive development.

Researchers analysing the economic socialization of children often refer to the theory of cognitive development Piaget and the theory of social learning Albert Bandura.

J. Piaget is the author of the concept of cognitive development of a child, which changes in a way that is unchanged through successive stages of development. Social development reminds Piaget of the development of intelligence. Each new step in the development of intelligence intertwines with a new stage in socialization. The basis of the intelligent behaviour of the unit is the scheme. Diagrams are methods of organizing and understanding experience, they arise as its effect and are used as the basis for all kinds of activities. New diagrams are constantly being created, and old ones are thwarted. It distinguishes four main stages, allowing the child to understand the surrounding reality and adapt to it by creating appropriate patterns of action. Their creation takes place through assimilation, or supplementing existing cognitive schemas with new information obtained and accommodation or modification under the influence of collected information [12]. Age 11-12, the age of preadolescence, is the last stage of development, the stage of formal operations (abstract thinking). Deductive reasoning allows him to master complex systems like natural sciences, mathematics or economics. All children, at different paces, but in the same order go through these four developmental stages [11].

E. Berti and A. Bombi (1988) characterized, based on the results of their research on the development of children's economic thinking, the stages of development of the understanding of economic phenomena. They found that children up to the age of 6 are in a pre-economic stage, when they have some basic knowledge about various economic elements known to them from experience, such as the store or money, but do not see the dependencies between them and do not create consistent knowledge systems. The next stage of development of

economic knowledge in the author's children was called the intuitive stage. Children aged 6-7 enter them and during this period begin to understand the dependencies existing between various phenomena and economic objects (e.g., work-pay). At the stage of specific operations (7-10 years of age) there is enrichment of knowledge about previously known to them objects and economic phenomena (e.g., money, shopping) and expanding it with new elements (e.g., paying taxes, banking functions). Children between the eleven and fourteen years of age are usually able to combine the elements of economic knowledge with a coherent, overall system, i.e., according to the classification developed by Berti and Bombi, they enter the stage of formal operations [14].

Another theory, to which researchers in the process of economic socialization refers, is the theory of social learning by Albert Bandura in 1969, which has a resemblance to behaviourism. The surrounding environment is a source of stimuli for the child. The child's specific behaviour is a reaction to them. By observing the effects, the child learns new types of behaviour. Learning new behaviour is a kind of reward, which strengthens the behaviour.

When the behaviour leads to a penalty – it expires. Strong reinforcement can be money.

For example, saving is strengthened when it allows you to acquire the desired item. This type of conditioning indicates the active role of the child in the world of consumption.

Children between eleven and fourteen years of age are usually able to combine elements of their economic knowledge into a coherent, comprehensive system, i.e., according to the classification developed by Berti and Bombi, they enter the stage of formal operations [14].

4. Consumer Socialization

Among the interests of researchers of economic socialization, consumer socialization has a special role. Socialization of the consumer is defined as a process during which children acquire the skills of knowledge and experience necessary to function as consumers. Consumer socialization is a process in which young people acquire and develop skills, knowledge and attitudes related to being a consumer. Children adopt the rules of behaviour as a consumer, observing parents and siblings who play the role of models. They gain experience while shopping together. It depends on the knowledge of parents, which is different and depends, among others, on the place of residence, income, education and their personal characteristics.

Teenagers rather pay attention to the behaviour of peers and derive from them the accepted patterns of behaviour. The behaviour of peers may also be varied and depend on similar variables as the behaviour of parents [15].

Consumer socialization is a process in which a child permanently harmonizes with the environment through the learning of new attitudes, behaviours and adopting standards. It is important to take this knowledge in a critical way, not submitting to advertising messages.

Along with the achievement of subsequent developmental stages, the process of consumer socialization should be deepened. Children influence the number of purchase decisions made in the family, concerning products purchased for them, and many others, designated for the whole family. Due to the pocket money they receive, are becoming a more and more important group of consumers, for which the producers are in favour. They grow fast, wear quickly and get bored quickly. They need many goods. They spend a lot of time in the media, whose message they absorb and want to take care of [16].

It is important to emphasize that consumer socialization is not the same in all cultures.

Working mothers are more likely to shop together with children than not working, it is also a way to spend time together. The early start of education in this area translates into an increase in consumer knowledge and awareness of young people, and non-promotion of advertising messages [13].

5. Financial Socialization

M. Maciejasz-Świątkiewicz recognizes that the problem of children's financial behaviour is taken into account in the framework of the study of economic socialization and as such constitutes a common research area within psychology and sociology and economics. In financial terms, children are perceived as potential participants of the financial market and in this way, they are the object of research [17].

Among the issues that a young person assumes in the process of financial socialization, one should distinguish those connected with money and its functions. It is important that the child notices the phenomenon of variability in the value of money over time. The shaping of attitudes towards saving plays a huge role. Right-budget construction, expenditure control are essential skills that will affect the quality of life for both adults and adolescents. The institution of credit in all its forms should be known and assimilated. Understanding the tasks of financial institutions is a process to which both parents and other agents of the socialization process – school, peers – can contribute. The level of knowledge of socialization actors and the ability to communicate and present in examples is also diverse. Financial socialization is a specific type of economic socialization because most of its issues at a higher than elementary level requires the child to achieve a certain level of development; the stage of formal operations. However, it is worth realizing that children's economic behaviours are shaped in a process that lasts for years. Starting from an early age, children are in contact with money and are not fully aware of their attitudes, which largely result from imitation. As adults' habits in the field of household management, expenditure planning, saving and investing money begin to develop as early as childhood, they perpetuate in adolescence, it should be recognized that conducting research on financial socialization is extremely important.

6. Other Issues of Economic Socialization

There is a whole range of issues that a young man is acquainted with, not having the character of consumer or financial socialization. For example, the attitude towards ownership and possession, shaped in the process of economic socialization, is a factor that will affect the purchasing behaviour of adult consumers. The concept of ownership has been well described in legal sciences, but beyond them it turns out to be a complex issue. The degree of personal certainty that you are the owner of things can vary. In the case of co-ownership of a married couple or family, or in the case of external financing (a bank), there is a limitation of ownership, because the co-owner's opinion and his will are to be taken into account. The sense of ownership can be conditioned by the specificity of the property-to-object relationship (e.g., the strength of attachment to a specific thing). The value of the possessed things for a man is assessed by him subjectively. There are, of course, objective measures of value, but they may be incompatible with the subjective value felt by man.

The subjective perception of values may be partially transferred in the process of socialization by the family and the environment. This takes on special importance when buying things. The buyer on the basis of the subjective usefulness that the thing brings him or her does, or not, the purchase decision. Sometimes people want to buy "at all costs", sometimes they buy excessive quantities. M. Górnik-Durose and Z. Zalewski emphasize that owning objects is not only a matter of purchasing them to complete the collection or use, it is also an essential element for the personality and individual well-being. The authors ask a question about what pushes a person to possess. They present different theoretical perspectives; biological that refers to the individual's instinct, which binds things to the image of oneself and the sense of one's own identity. The interpersonal and cultural perspective seeks sources of tendencies to collect goods in their usefulness as tools of social

communication. Regardless of the theoretical perspective, the mechanism of transmission may be economic socialization of a human being [18].

Economic knowledge and understanding of phenomena occurring in the economy, as well as their critical analysis, have an impact on the economic behaviour of individuals. On the path of her acquisition by children, first parents and grandparents. They pass, or fail, knowledge in the described area, also giving an example of their behaviour. Another important group that is gaining significant importance are their peers. Economic knowledge is also transferred here. The school plays the main role in learning about the surrounding economic reality. The quality of entrepreneurship at school differentiates the message of young people in different places at the start, and also raises or not interest in this area. In economic socialization, the broadly understood acquisition of economic knowledge takes place throughout life. These adult searches, which then translate into specific adult choices, are conditioned by education, personal characteristics, as well as by the methods and experience memorized from earlier stages.

7. Conclusions

Research on economic socialization is very important. It is a process that affects the well-being of future generations. It really depends on the work of previous generations, which must be given to the effort of conscious introduction of the economic phenomena of previous generations into the world. In the studies on economic socialization, two trends of consumer and financial socialization are clearly visible. It is also noticeable that researchers are interested in economic knowledge at every level of development. State institutions are directing various activities of an economic nature to young people. They are also reported by financial institutions that want to raise their future clients. Marketing activities targeting young consumers are equally active. One should agree with the thesis that the quality of economic socialization may depend on the quality of knowledge and behaviour presented by socialization actors, which in turn are variable in time and space. This is accompanied by diverse skills of knowledge transfer, personal characteristics of actors favouring more or less economic socialization.

Irregularities in the process of economic socialization may result in an inefficient management of own income. This may be due to irregularities in expenditure as well as in suboptimal income allocation. There may be reluctance to save or avoid taking out insurance, resulting from incorrect estimation and understanding of risk. Failure to understand economic phenomena may result in inability to critically evaluate them, accepting partial media messages as their own. The appearance of higher irregularities on a larger scale will not be conducive to development on a larger scale.

REFERENCES

[1] Thaler, R.H. (2018). Zachowania niepoprawne. Tworzenie ekonomii behawioralnej. Media Rodzina. Poznań, p. 48.
[2] Waerneryd, K. E., (2004). Psychologia i ekonomia. [in:] T. Tyszka (red.). Psychologia ekonomiczna. GWP. Gdańsk, p. 26.
[3] Roter, A. (2005). Proces socjalizacji dzieci w warunkach ubóstwa społecznego. Wyd. UŚ. Katowice, p. 15.
[4] Znaniecki, F. (1974). Ludzie teraźniejsi a cywilizacja przyszłości. PWN. Warszawa, p. 48.
[5] Sztompka, P. (2005). Socjologia. Znak. Kraków, p. 391.
[6] Szczepański, J. (1967). Elementarne pojęcia socjologii. PWN. Warszawa, p. 78.
[7] Przetacznikowa, M. (1971). Rozwój i wychowanie dzieci i młodzieży w średnim wieku szkolnym. NK. Warszawa, p. 138.

[8] Skorny, Z. (1976). Proces socjalizacji dzieci i młodzieży. WSiP. Warszawa, p. 17.
[9] Zaborowski, Z. (1967). Podstawy wychowania zespołowego. PWN. Warszawa, p. 340.
[10] Juszczyk- Rygałło, J. Socjalizacja dziecka jako proces kształtowania tożsamości. EETP Vol. 11. 2016. No 4 (42).
[11] Goszczyńska, M. (2012). Socjalizacja ekonomiczna- zakres problematyki badań i ich metodologia [in:] Goszczyńska, M., Kołodziej, S., Trzcińska, A., Uwikłani w świat pieniądza i konsumpcji. O socjalizacji ekonomicznej dzieci i młodzieży. Difin. Warszawa, p. 14.
[12] Roland-Levy, Ch. (2004). W jaki sposób nabywamy pojęcia i wartości ekonomiczne? [in:] red. Tyszka, T. Psychologia ekonomiczna. GWP. Gdańsk, p. 277.
[13] Schiffman, L., Kanuk, L.L. (2004). Consumer behavior. Pearson Prentice Hall. New Jersey, p. 348.
[14] Trzcińska, A. (2012). Socjalizacja ekonomiczna i cechy indywidualne jako determinanty postaw oraz zachowań oszczędnościowych młodzieży. UW. Warszawa, p. 45.
[15] Moschis, G. P., Churchill, G.A., Jr. (1978). Consumer Socialization: A Theoretical and Empirical Analysis. Journal of Marketing Research Vol. XV, pp. 599-609.
[16] Hayta, A.B. (2008). Socialization of the Child as a Consumer. Family and Consumer Sciences Research Journal. Vol. 37. No. 2, p. 167.
[17] Maciejasz- Świątkiewicz, M. (2016). Zachowania finansowe dzieci-problem finansów czy psychologii? Dylematy metodologiczne. Prace Naukowe UE we Wrocławiu nr 425. Ekonomia-finanse-bankowość, p. 6.
[18] Górnik-Durose, M., Zalewski, Z. (2004). Własność i posiadanie [in:] Tyszka, T., Psychologia ekonomiczna. GWE. Gdańsk, p. 123.

Institutional Change and Institutional Challenges in EU. Analysis of Transition in East-European Countries with Special Focus on Romania

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1. Introduction

In the complex matrix of conditionalities that Romania had to deal with in the transition process, the European project played a crucial role for two main reasons. Firstly, because the transformation process of Romanian society and of a collapsed planned economy was, at that moment, a real challenge and an unclear task for most of the political parties. This was also true for civil society and newly emerged NGO's whose main social goal was to catch up rapidly the Western standard of living. Therefore, being part of the EU project has been the best solution for a major political dilemma "We are governing a country. Where to?".

Secondly, in the context of a poor understanding of principles of market economy, the political parties have preferred to adopt a mimetic and hesitant behaviour in the governing process, no matter the period of time or ideological background. This explains the superficiality and rapidness with which Romania tried to shape the institutional framework to meet the EU standards. But, as the recent history illustrates, these "rules of European game" were only formally implemented, making them subject to social erosion and finally lead to corruption and state capture. However, the convergence criteria and the *acquis communitaire* are still being considered the optimal institutional tools for achieving the social goal which seems to be extremely desirable but, at the same time, very difficult to reach: sustainable development.

But an answer to a fundamental question has still waiting to be found: Is the present European Project the best institutional recipe for development? In the current context, where the EU doesn't seem to find rapid and efficient solutions to economic and social challenges that many members have confronted with, EU should re-evaluate the current perspective in order to improve the economic performance and increase cohesion among countries.

Consequently, the theoretical and empirical analysis of the institutional quality of the European model in promoting sustainable development becomes especially important in practical terms, both for emergent countries like Romania, and for EU as a whole.

2. The "Go and Stop" Therapy. Made in Romania

The collapse of central planning in the late 1980s has increased the interest of scientists (and especially economists) for a new research field: theory of transition (e.g., institutional transformation from plan to market). In this context, there have been developed numerous scientific studies regarding transition process, qualitative and quantitative evaluations of the performance of gradual and shock therapies that might be implemented. In Romania, probably more than in other neighbouring countries, the debate in favour of a model or another has

generated especially labels like “we do not sell our country” or “you are too reformist” instead of focusing on a coherent country project that takes into account the specific situation: a divided and weakened society, an unstructured and uncompetitive economy, a political scene more interested in “changing the face” than to reform in a consistent way our economy and society.”

After years of transition, we have been involved in a political and institutional evolution whose keywords (apparently antagonistic) are *reformism* and *continuity* [1]. The lack of vision and clarity in designing a new trajectory for society, augmented by bureaucratic inertia of central and local government bodies, has led to an inconsistent adoption of European institutional framework. It was easily to perceive that between different administrative structures have emerged communication and reporting problems which have been proved very difficult to overcome, with obvious implications in terms of increased social costs of transition.

According to Janos Kornai [2], abolition of central planning has produced a huge vacuum of organizational rules, economic relations and obligations between the economic agents.

Coexistence of new institutional structures, along with the old ones, opened the natural struggle between opponents and supporters of pro-market reforms. Such latent conflict has undermined the effectiveness of the reform process and induced a “go and stop” cyclical evolution.

After almost a decade of the transition, Romania, like most of the Central European countries, has decided to become member in the European construction. The eligibility criteria from Copenhagen, the central pillars in the process of analysis of candidate countries have proved important external conditionality in designing the domestic economic policies.

These conditionalities lead to institutional changes if there is a lack of concordance between the national and European policies. One of the most important elements of European conditionalities derives from the implementing of the legal and institutional criteria, also known as the *acquis communitaire.* This initiative does not mean only to transfer the European legislation to national level, but also implementing and ensuring the functioning of this institutional framework so that it will produce the desired effects. Still, considering the experience of the last EU accessions, ignoring some important informal institutions such as traditions, mentalities and collective preferences, will make this import of European formal rules to lead to different results for the different countries that apply these rules of the European game. Focusing on Romanian case, there are two main issues to consider. Firstly, the solution of the European project made possible for the political scene to get to another level in conceiving and agreeing on a coherent national strategy, which meant no doubt the way out of a vicious circle that we had been into ever since 1990. Secondly, the *conformism* and *imitation* adopted by the political forces that ruled the country has been strongly highlighted.

Conformism, because once Romania has moved in the direction of the European Union, the road for modernization seemed not only “to make sense but to be as straight and predictable as a highway with no crossroads” that would cause dilemmas for our politicians constantly preoccupied by the short term effects on their own electoral numbers, and completely ignorant to the long term implications of medium and long term effects of several macroeconomic policies [3]. This explains why the political scene always preferred to make excuses in front of the general public about different actions and decisions, invoking the argument that they had been imposed by European institutions.

Imitation, because even though we have adapted the national legislative framework to the European one (*the form*), the social reality (*the substance*) was different if we take into consideration the multiple exceptions to applying the norms of the *acquis communitaire*, from the environmental ones, to the ones about property rights reforms and transferring land to

non-residents. The mistake of the *form* without any *substance* has revealed many malfunctions in the coherent restructuring of economic sectors but also in reconstruction of the society. Moreover, the institutional fragility that has always characterized the process of transition into a "functional" market economy has proved favourable for consolidating local interest groups that captured and modelled government programs and economic policies from Romania, according to their own interests and constantly sacrificing the public interest.

Considering the initial situation in Romania at the moment when the accession negotiations have been open, an honest adoption of the *acquis communitaire* would have meant a radical reform in the state bureaucracy and legislation, reducing corruption and administrative blockages. This approach would facilitate a competitive environment to emerge. If it had been respected fully, the European integration process should have been an accelerating factor for an extensive transformation in the direction of the market economy, by increasing economic freedom, and implicitly, decreasing state intervention in economy.

The Maastricht criteria (that have been reinforced by the Stability and Growth Pact) prove to be essential tools for ensuring stability and financial responsibility in the European area, especially in the institutionally fragile countries such as the new members. If we look from this perspective, the convergence criteria and the Euro are much more than some narrow fears to avoid high inflation or reckless spending of the public resources. Alongside the euro, these are essential ingredients in achieving real convergence [3]. In the last decades, the emergence and expansion of theoretical and empirical research in the field of institutional change reveals that economic performance depends strongly on the quality of the institutional framework, on its capacity to guarantee a higher degree of economic freedom, by limiting the influence and government intervention, and by offering legislative predictability and strengthening the legal system. In many of these aspects, Romania was (and, unfortunately, still is) far behind. On the other hand, we must admit that bringing Romania close to the European institutional framework had a positive short-term effect – an important increase of economic freedom and, consequently, of economic development. Nevertheless, when we look at the medium – and long-term effects, besides the positive aspects of the European conditionalities, we start noticing the negative ones, harmful especially for emergent and institutionally fragile economies.

If we accept that economic development is conditioned by the quality of institutions and West Europeans have presently a higher standard of living, then the assimilation of the *acquis communitaire* would have been sufficient recipe in ensuring the conditions for development.

However, we must admit that integrating the social and environmental dimensions in the European model is relatively recent and still not fully operational. The lack of a deep understanding of the dynamic institutional change that took place in our societies has made us to confuse the cause with the effect. Unfortunately, not the social European model is the ultimate cause for the West prosperity, but it is the other way around. The wealth and prosperity in Western Europe had firstly to be created in order to be redistributed afterwards through social measures, as they are now.

In addition, the process of European accession seems to be insufficient for the east-European countries, because it doesn't recognize (and by consequence doesn't solve) the issues related to the use of political means of scarce resources allocation in the economy.

Criteria such as simplicity and transparencies are not fundamental in the analysis of the quality of institutions, but the way these criteria promote or not economic freedom, as an important constitutional foundation for development. The European model currently promoted by Brussels is eroding slowly but surely the economic freedom, preserving the status quo of interventionism and rather redistributes than creates wealth.

3. EU Agenda for a "Limited Economic Freedom" and "Quo Vadis EU?"

As an empirical illustration of this perspective, we evaluate the compatibility of European model with the economic freedom criteria, as long as the last is widely recognized in the economic literature as being a milestone for development process and modernization of society. The research tool we use is Economic Freedom Index elaborated by Fraser Institute [4], in which structure can be found five dimensions: the extension of public sector in economy, the efficiency of legal system in securing property rights, monetary stability, freedom to trade, and business regulations. The scale is from 1 to 10 meaning moving from less to more freedom.

In the Table 1 and diagram is illustrated the evolution of aggregate economic freedom in six European countries, selected according the EU accession period: Germany and France (old members), Czech Republic and Poland (2004 members), and Romania and Bulgaria (2007 members).

Table 1. The Aggregate Economic Freedom Index (data)

	1990	2000	2005	2010	2015	2016
Germany	7.64	7.80	7.75	7.59	7.64	7.69
France	7.04	7.47	7.31	7.42	7.35	7.25
Czech Republic	-	6.74	6.98	7.22	7.49	7.56
Poland	3.51	6.55	6.89	7.12	7.36	7.27
Romania	**5.02**	**5.73**	**7.24**	**7.30**	**7.70**	**7.69**
Bulgaria	4.17	5.55	6.95	7.30	7.40	7.41

Source: Gwartney *et al*. (2018)

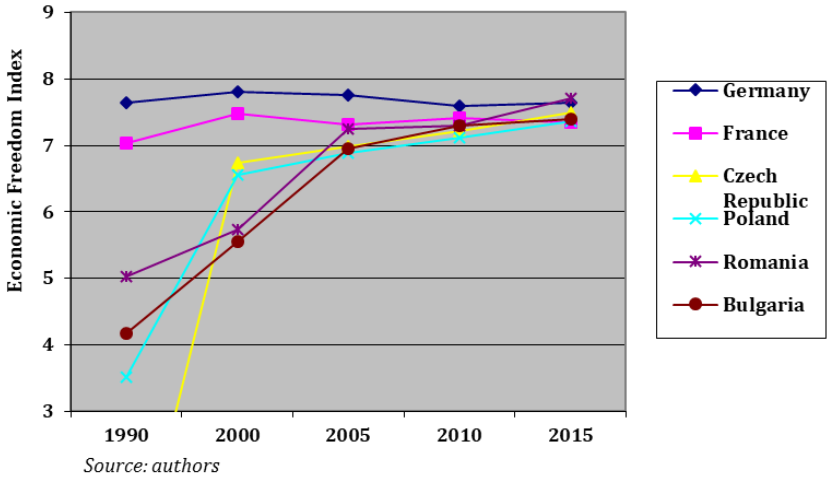

Fig. 1. Aggregate Economic Freedom (graphical illustration)

4. Conclusions

Furthermore, few main conclusions can be drawn considering the institutional capacity of European model to promote economic development and subsequently to understand the benefits and limits of the European formal conditionalities for member states such Romania.

We can conclude that, on the one hand, European institutional framework has offered to its new members a more stable legal framework, a relatively increased discipline in budgetary and fiscal policy, a more stable monetary policy and inflation control. But, on the other hand, the economic freedom promoted by the present European construction is limited, as long as the 7.4 level tends to attract most of countries included in this sample. While for Central and

Eastern European countries the economic convergence has meant an expansion of economic freedom and an economic development process, for countries like France or Germany, widely recognized as model, since 2000, there is a decrease of aggregate economic freedom.

Therefore, in the matrix of external conditionalities, under the present framework of European model, is very unlikely that the new member states can register improvements in terms of economic freedom and development, which would have fostered the catching-up process and real convergence. Furthermore, issues as Brexit or the emergence of nationalist parties across Europe will challenge the European model promoted so far and this requires an urgent re-evaluation of present paradigm of European politics.

REFERENCES

[1] Oprea, M. (2004) *Moştenitorii Securităţii*, Editura Humanitas, Bucureşti, 2004.
[2] Kornay, J. (1990) *The Road to a Free Economy. Shifting from a Socialist System*, W.W. Norton, Ney York.
[3] Marinescu, C. (coord) (2012) *Capitalismul. Logica libertăţii*, Editura Humanitas, Bucureşti.
[4] Gwartney, J., Lawson, R. (2018) *Economic Freedom of the World. 2018 Annual Report,* Fraser Institute, Canada.

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