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## **Innovation Determinants of Social and Economic Cohesion in the European Union**

### FOREWORD AND CONSIDERATION OF THE SOURCE OF A PROBLEM

Today the European Union faces the necessity to reconcile the main drivers of its social-and-economic development. This is mainly caused by the fact that Europe is loosing momentum in the international competition under the pressure of the USA (the main competitor), Japan and Asian “tigers” (Hong Kong, Taiwan, South Korea, Singapore etc.) as well as new emerging economies such as China, India and Brazil.

The economic performance in Europe has been poor in relative terms. Since 1995, the growth rate for the EU-15 has averaged 2.2%, compared to a global average of 3.6% and 3.2% for the United States [*Building...*, 2004, p. 3]. One of the main indicators of countries’ competitiveness is GDP per capita. During the last 30 years the EU GDP per capita constituted only 70% of the US level. Specific studies suggest that this constant gap in GDP per capita is mainly due to a slowdown in the growth of labour input and increased unemployment [*Key Figures...*, 2005, p. 7].

While the average growth of labour productivity per hour in Europe amounted to around 2.5% per year in the first half of the 1990s, well above the US growth rate, it then declined to 1.5% over 1996-2003 compared with an increase of an approximately similar amount in the US to 2.4% (see: figure 1). So, labour productivity in the US is now growing twice as fast as in Europe, and as a result thereof the relative levels of wealth in the EU also started slipping.

Over the two last decades of the past century the world technology leaders were the United States and Japan, accounting together for more than 50% of the global high-tech market. As for the EU technology leaders in terms of absolute level of R&D expenditures (namely, UK, Germany, France and Italy) they experienced a significant decrease of their high-tech world market-shares. In the period 1980-1998 the world exports high-tech market share fell from 8% to 5,4% in Germany, from 6,7 to 5,4% in the UK, from 6,1 to 3,9% in France and from 2,7 to 1,6% in Italy [*Science...*, 2002, p. 6-7].

Figure 1. Labour productivity per hour growth trends (percentage change from previous year)

Source: [*Key Figures...*, 2005, p. 16].

This was mainly due to the increase of competitive pressure from the East-Asian “tigers”. Korea’s share in the same period almost tripled – growing from 1.1 to 3.1%, the same is true for Taiwan (a change from 1,3 to 3,3%), Singapore (a change from 0,7 to 2,6%) and China (a change from 0,6 to 2,9%) [*Science...*, 2002, p. 6-7].

In 2002, US high-tech industries accounted for more exports at world level than the EU or Japan, i.e. nearly 20 % in comparison to 16.7 % and 10.6 %, respectively (see: figure 2). However, the trend of market-share dynamics changed for the opposite one: world export share of EU high-tech industries increased by 1.8 % annually from 1997 to 2002, whereas the shares of Japan and the US decreased at average by 5,3 and 3,5.

The positive trend in Europe, however, is basically due to the development of high-tech production in the new Member States, a positive effect of enlargement, which also has positive spillovers for older Member States, which are all outperforming the US with the exception of Sweden in terms of world high-tech exports share growth [*Key Figures...*, 2005, p. 66].

In 2003, manufacturing exports were less technology intensive in the EU than in the US and Japan. High-tech industries accounted for 19.7% of total EU

manufacturing exports, at the same time they constituted well above 25% of total manufacturing exports in Japan and the US.

Figure 2. High-tech manufacturing industries – world market shares of exports  
Source: [Key Figures..., 2005, p. 67].

The highest high-tech manufacturing exports share within the EU is characteristic for small-scale economies such as Malta, Ireland, Luxembourg and Hungary, where high-tech industries accounted for more than 30% of total manufacturing exports. These high scores are mostly due to the presence of large, export-oriented high-tech companies. At the same time, high-tech industries accounted for less than 13% of total manufacturing exports in the most of the other new Member States and southern European countries [Key Figures..., 2005, p. 67]. The more so, the US and Japan have a structural trade surplus in high-tech branches, and the EU is suffering (with a small exception) a structural trade deficit in these industries [Key Figures..., 2005, p. 68].

Other reasons for indicating the downturn in the EU international competitiveness are as follows [The new integrated..., 2005]:

- the average growth rate for investment constituted a mere 1.7% per year compared with 5.4% per year in the USA;

- the EU under-invests in R&D, as the USA is spending about €100 billion more on R&D than Europe;
- the EU has only 25% of the number of patents per capita found in the USA;
- while in the USA 32% of population has university or similar degree, this percentage stands at only 19% in Europe;
- the USA invests about twice the amount per student as most European countries;
- in 2004 the average growth of the Euro area was only 2.2%, while the US economy grew by 4.3%, Japan by 4.4%, India by 6.4% and China by 9%.

#### STRATEGY FOR COMPETITIVENESS AND ITS OUTCOMES

Accounting for these and other arguments in March 2000 the Lisbon European Council of the Heads of State and Government set a strategic objective for the European Union “to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion” over the next ten years [*Five-Year...*, 2005, p. 36]. Innovation policy acquired a central role in the process of building a knowledge-based economy. Later on, in March 2002, the Barcelona European Council of Heads of State and Government determined that R&D investment in the European Union should be increased to approximately 3% of GDP by 2010 (that is one percentage point higher than the 2000 year level). Business investments in R&D are supposed to contribute two-thirds of the gross EU indicator.

However an analysis conducted by the High Level Group headed by Wim Kok in 2004 showed that there were significant shortcomings and obvious delays in meeting Lisbon objectives [Kok, 2004]. Other important indicator of the EU progress towards the Lisbon targets is the Lisbon Review, published by the World Economic Forum biannually.

Based on the results of the WEF Lisbon Review three top-ranked countries – Denmark, Finland and Sweden – retain their places as the countries best meeting the Lisbon goals to date. The overall list of the top ten performers remains almost the same compared to the previous 2004 review [*The Lisbon...*, 2006, p. 5] (see: table 1). Notably the results of the EU-15 members remain quite stable, with the exception of Portugal’s four-places-improvement, and a drastic downfall of Italy (moving 10 places down to the 24th).

As for the EU-10 accession countries (of May 2004), over the past couple of years their comparative performance has been improved. More over, a number of recent members moved even closer to meeting the Lisbon goals than many of the original EU-15 members. This may be explained by the fact, that for more than a decade the Central and East European countries have been engaged in a process of reform aimed at adopting the institutions and mechanisms of market economy, which has been reinforced within the context of EU accession negotiations [*The Lisbon...*, 2006, p. 5].

Table 1. Lisbon Review Ranking and Scores of EU Countries – 2006 and 2004

Country EU 25	2006	2004	Country EU 25	2006	2004
	Rank	Rank		Rank	Rank
Denmark	1	2	Portugal	13	17
Finland	2	1	Czech Republic	14	19
Sweden	3	3	Spain	15	13
Netherlands	4	5	Slovenia	16	15
Germany	5	6	Hungary	17	20
United Kingdom	6	4	Slovak Republic	18	23
Austria	7	9	Malta	19	18
Luxemburg	8	7	Lithuania	20	21
France	9	8	Cyprus	21	-
Belgium	10	10	Latvia	22	16
Ireland	11	11	Greece	23	22
Estonia	12	12	Italy	24	14
			Poland	25	24

Source: [*The Lisbon...*, 2006, p. 5].

However, comparing the EU performance against its main competitors (the US and East Asian countries) uncovers significant gaps in the development of an information society, innovation and R&D and enterprise environment, all areas in which both East Asia and the US outperform the EU by a wide margin [*The Lisbon...*, 2006, p. 8]. That is why the above-mentioned areas require urgent attention from EU member-countries in aspiration for turning into the most competitive economy in the world.

Let us take a closer look at the innovation policy component and the reasons of poor performance of most of the EU-members on the way to meeting the Lisbon targets. At EU-25 level, the average annual growth rate in R&D intensity between 2000 and 2003 (0.7%) was higher than that of the US. As a result, the EU-25 has been catching up with the US since 2000 [*Annex to...*, 2005, p. 26-29]. However, China's R&D intensity grew at about 10% per year between 1997 and 2002. If the trends for the EU and China continue, the latter will be spending the same amount of GDP on R&D as the EU in 2010 – about 2.2% [*Stagnation...*, 2005].

The analysis of R&D intensity evolution in the EU in the period 2000-2003 allows to divide Member States into four groups, each of which impacts the progress towards the 3% objective in its own way (See Figure 3). The overall trend towards stagnation in the EU R&D intensity is defined by the three biggest investors – France, the UK and to a lesser extent Germany [*Annex to...*, 2005, p. 26-29]. The second group consists of innovation and R&D top-performing countries (Sweden, Denmark, Austria and Belgium) which altogether are pulling ahead of the EU average. Their total weight, however, is far less than that of the

first group. As for Finland – traditional R&D leader– it has seen its R&D intensity stagnating since 2000. A third group with Cyprus, Estonia, Hungary, Lithuania, Spain, Italy and Slovenia are rapidly catching up with the rest of the EU. Their impact on the overall R&D-intensity is also small [*Annex to...*, 2005, p. 26-29]. A fourth group consisting of Latvia, Poland, Slovakia, Greece, Portugal and Ireland is falling behind the EU average.

Figure 3. R&D intensity and annual growth rate 2000-2003

Source: [*Annex to...*, 2005, p. 26-29].

In 2002, business financed only 55.6% of domestic R&D expenditure in the EU, compared to 63.1% in the US and 73.9% in Japan. And this share shows a downfall trend for the European Union. The most worrying conclusion of the latest European Commission R&D statistics, however, is that the European Union is becoming a less attractive place to invest and carry out research. Between 1997 and 2002, R&D expenditure by EU companies in the US increased much faster than R&D expenditure by US firms in the EU (54% compared to 38%), as the result the net imbalance in favor of the US increased five-fold from about €300m in 1997 to almost €2b in 2002 [*Stagnation...*, 2005].

The average EU-25 share of R&D expenditure funded by the business enterprise sector is much lower than in Japan and the US. The contribution of the private sector to R&D financing has even decreased over recent years in the EU, whereas, on the other hand, it has been increasing in Japan. The overall trend to

stagnation of R&D business funding has been determined by the economic downturn. However, a clear distinction can be made between several groups of EU countries in terms of their effect upon the achieving the 2/3ds of business R&D financing objective (see: figure 4).

Figure 4. R&D intensity and annual growth rate 2000-2003

Source: [Annex to..., p. 26-29].

The R&D intensive countries Sweden, Finland, Denmark, Germany, Belgium and Slovenia are improving the share of R&D funded by the business sector. On the contrary France, Spain, the Netherlands and the Czech Republic experienced the trend to stagnation or even fall back of the business share. Greece, Portugal, Estonia and Austria are strongly catching-up with the rest of the EU. The fourth group (Latvia, Hungary, Lithuania, Slovakia, Poland and the UK) is falling behind the EU average.

#### REVISION OF THE STRATEGY AND FURTHER PROSPECTS

Taking into consideration these data, EU and international studies, the European Commission proposed a fundamental revision of the original Lisbon strategy [Integrated..., 2005], which found its further development in the Lisbon Action Plan [Lisbon action..., 2005], where the Member States' effort is proposed to focus on priority actions under three policy areas:

Making Europe a more attractive place to invest and work

- Extend and deepen the internal market,
- Ensure open and competitive markets inside and outside Europe,
- Improve European and national regulation,
- Expand and improve European infrastructure,

Knowledge and innovation for growth

- Increase and improve investment in Research and Development,
- Facilitate innovation, the uptake of ICT and the sustainable use of resources,
- Contribute to a strong European industrial base,

Creating more and better jobs

- Attract more people into employment and modernise social protection systems,
- Improve the adaptability of workers and enterprises and the flexibility of labour markets,
- Invest more in human capital through better education and skills.

Based on Commission Action Plan, European Council in March 2005 defined the three vital strands for the re-launch of the Lisbon Strategy: (1) gearing knowledge and innovation as the engines of sustainable growth, (2) turning EU into an attractive area in which to invest and work, (3) fostering growth and employment making for social cohesion [*Presidency...*, 2006, p. 3-11]. At the same time the Council proclaimed, that “the financial perspective for 2007-2013 will have to provide the Union with adequate funds to carry through the Union's policies ... including the policies that contribute to the achievement of the Lisbon priorities” [*Presidency...*, 2006, p. 2]. The Council of Europe recognized innovation, R&D and improving the enterprise environment as the key areas for priority action. More in detail, in the Council Presidency Conclusions of the Spring 2006 summit [*Presidency...*, 2006] it underlined the importance of investing more in knowledge creation and innovation, and placed the accent on developing the business environment conducive for the uptake of small- and medium-sized companies.

All the above mentioned priority areas found their reflection in the Financial Perspectives, approved by the European Council in December 2005 [*Financial...*, 2005]. The new structure of appropriations in general resembles the one approved for the 2000-2006 period with several exceptions (see: figures 5 and 6).



Figure 5. Structure of total appropriations of the EU budget over the period 2000-2006, %

Source: author's calculations on the base of: [Laffen, Shackleton, 2003, p. 231].

A new sub-heading “Competitiveness for growth and employment” was introduced in support of the action by the Member States to contribute to the goals of the Lisbon Strategy. It acquired 8,4% of the total appropriations for the period 2007-2013. This objective includes five broad spheres: research and technological development; connecting Europe through EU networks; education and training; promoting competitiveness in a fully integrated single market and the social policy agenda [*Financial...*, 2005, p. 5].

Cohesion policy (under sub-heading 1b) - one of the most significant beneficiaries from the EU budget in 2007-2013) acquired some new priorities, among which “Regional competitiveness and employment” is most important for our further conclusions [*Financial...*, 2005, p. 8]. It accounts for 15.8% (or 48,789 million euros over 2007-2013) of “Cohesion for growth and employment” objective.

Figure 6. Structure of total appropriations of the EU budget over the period 2007-2013, %

Source: author's calculations on the base of [Financial..., 2005, p. 33].

## CONCLUSIONS

These changes, enforced by the international competitiveness challenges, indicate a shift of the EU social-and-economic developmental model towards a more liberal one, wherein entrepreneurship and innovations play the central part in the economic development. The idea is that, a wide range of current problems (high unemployment, low investment activity, insufficiency of R&D intensity etc. all resulting in low labor productivity and per capita GDP growth rates) bear a high strategic risk of losing by Europe its competitive status in the global arena. That is why social justice and cohesion in the EU has no other alternative but to be based, in ever-growing progression, on the strong entrepreneurial base fueled by investment in innovations and human capital, building the knowledge-based economy and a knowledge value society.

As for the prospects of EU accession for candidate countries (Turkey, for instance) and other potential applicants (among which we point out Ukraine) they remain quite uncertain for the coming seven-year period in the light of the above mentioned arguments. On one hand, the accession is hardly possible in view of high economic cost of their absorption for the EU budget and in the context of the convergence criteria. On the other hand, as European economists suggest, Ukraine and Turkey together with Bulgaria and Romania could create a low-wage buffer zone and a strong link in the European supply chains as mighty tools for competition against low-cost Asian imports [Emerson, 2006].

In any case, the accession of new potential candidate-countries will not be an easy decision to make. The ratio between economic efficiency and social cohesion will be the mile-stone for making that kind of decisions both on the side of the EU and the potential New Member States (being a more complicated issue for the latter rather than for the EU).

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*Summary*

The main idea of the article is to research a shift of the EU social-and-economic developmental model towards a more liberal one, oriented towards strengthening the entrepreneurial base as well as fostering investment in innovations and human capital, building the knowledge based economy. Author's standpoint is supported by the analysis of reasons indicating the downturn in the EU international competitiveness due to the gap in productivity and innovation capacity. Accent is placed on the Lisbon strategy implementation and its re-launch as the main instrument of social-and-economic reform. In the end conclusions concerning the affect of the abovementioned shifts upon the social-and-economic cohesion within the EU are drawn.

**Innowacyjne determinanty spójności społeczno-ekonomicznej Unii Europejskiej***Streszczenie*

Głównym celem opracowania jest analiza przekształceń modelu rozwoju społeczno-gospodarczego UE w kierunku modelu bardziej liberalnego, zorientowanego na wzmacnianie bazy przedsiębiorczości i wspieranie inwestycji w innowacje i kapitał ludzki oraz tworzenie gospodarki opartej na wiedzy. Punkt widzenia autora został wsparty poprzez analizę przyczyn spadku międzynarodowej konkurencyjności UE w efekcie istniejącej luki produktywności i innowacyjności. Nacisk został położony na wprowadzanie Strategii Lizbońskiej i jej ponowną weryfikację jako główny instrument reform społeczno-gospodarczych. Na zakończenie zarysowano wnioski dotyczące oddziaływania opisanego wyżej zwrotu na społeczno-gospodarczą spójność w ramach UE.