BELGIAN SCIENCE POLICY

Programme "Society and Future"

Final report – "Research Summary"

RESEARCH CONTRACT: TA/00/23

PROJECT ACRONYM: **REFBARIN**

TITLE: "**Product market reform, labour bargaining and innovativeness of Belgian firms**"

TEAM (indicating institution and research unit): MOSI, VRIJE UNIVERSITEIT BRUSSEL

CO-ORDINATOR: Glenn RAYP (UNIVERSITEIT GENT)

PROMOTER(S): Jan VAN DER LINDEN (FEDERAAL PLANBUREAU)

RESEARCHERS: Chrissopighi BRAILA (FEDERAAL PLANBUREAU), Ronald DEKKER (TECHNISCHE UNIVERSITEIT DELFT), Alfred KLEINKNECHT (TECHNISCHE UNIVERSITEIT DELFT), Maya MICEVSKA (UNIVERSITEIT GENT), Glenn RAYP (UNIVERSITEIT GENT),Shreosi SANYAL (UNIVERSITEIT GENT), Jan VAN DER LINDEN (FEDERAAL PLANBUREAU)

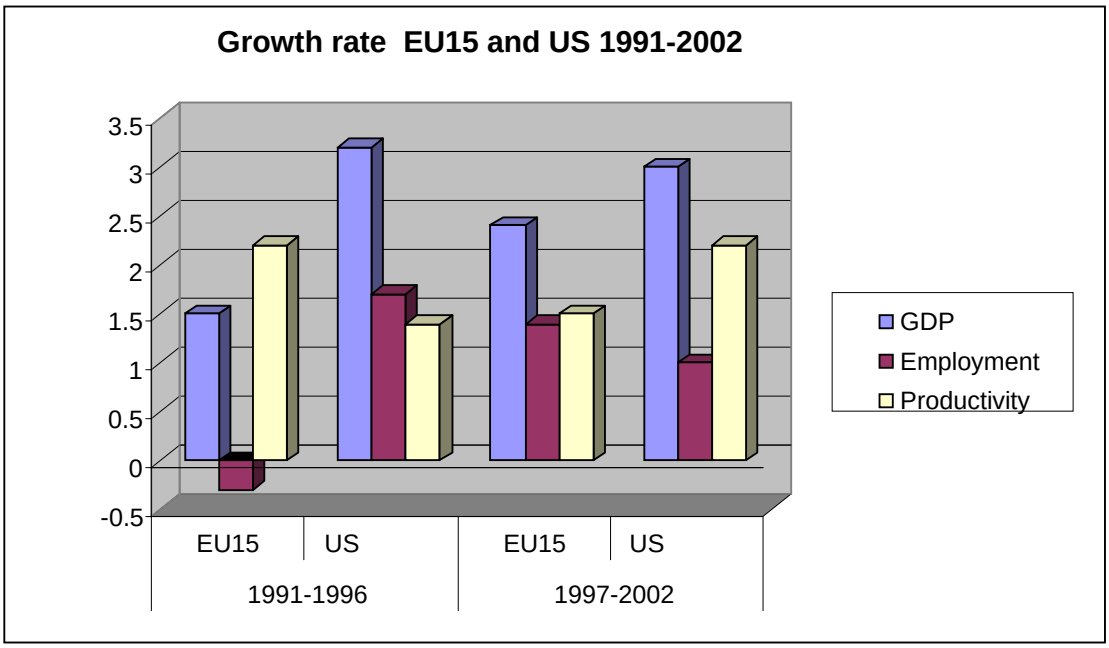
DATE: 23/02/2010

The purpose of this summary is to disseminate the research findings via the internet.

Summary

Aims and scope

At the end of the 1990s, Europe became increasingly concerned about the divergence in productivity growth with the United States.



Source : World Economic Outlook, IMF & OECD Economic Outlook, OECD

Structural reforms were undertaken, aimed at the improvement and reinforcement of economic efficiency and the innovation potential of the European economy. As regards product and service markets, these consisted of two program frameworks : the Internal Market Program and the Lisbon Agenda.

REFBARIN wants to evaluate the effect of structural market reforms on innovation in the European economy, ten years after. Are there indications that market liberalisation stimulates innovation -at least at the level of the innovation efforts- and, if yes, should one continue on this way ? Typically for the European economy is the determination of wage and work conditions by collective bargaining between firms and trade unions. To what extent does the more administrative regulation of the labour market in Europe interfere with a strategy of increasing the incentive to innovation by market liberalisation?

Theoretical framework.

The literature is ambiguous about the innovation effect of competition and trade union bargaining power.

In the past decennia, competition was considered to discourage innovation, because of the "rent dissipation" effect, i.e. the negative effect of competition on net profits which are the incentive to innovate. Recently, one rather stresses the positive effect of competition on the

innovation efforts of leading incumbent firms, who innovate to keep their lead with respect to competitors.

Collective bargaining can imply a “hold-up” problem if a trade union would induce a firm to invest (for example in R&D) by setting low wages but reconsider its wage claims once the investment has been carried out and asks a compensation for the increased productivity. Consequently, firms will anticipate by reducing their investments. However, a hold-up problem is far from certain in the presence of repeated bargaining between firms and employees. Trade unions could even encourage the adoption of new technologies by improving the co-ordination between workers.

In view of these ambiguous theoretical expectations, the lack of clear empirical findings doesn't come as a surprise.

We notice quite important limitations in the availability of adequate indicators at a common level of analysis. Direct indicators of product market reform measure the intensity of regulation. Existing indicators do not seem very encompassing and are characterised by a trade-off between accuracy and the detail of availability. Alternatively, product market reforms can be proxied by indicators of competition. Yet, the existing indicators of competition seem to measure competition in a partial manner. As regards the characteristics of collective bargaining, detailed data are only available on occasional and partial basis.

Data requirements

As regards product market reforms, the only source which provides data at the sector level for the OECD countries is the REGIMPACT database of the OECD.

Ideally, competition indicators should reflect two components ; entry of firms into the market and the competitive behaviour of incumbents. Indices of concentration only measure accurately the first component. The indicator that theoretically measures the most accurately the two components is an indicator of profit elasticity. Because such an indicator is not commonly used in policy analysis or in empirical research, we consider in addition some of the more frequently used competition indicators. In our computations we used data from AMADEUS and EU-KLEMS.

We obtained information about the characteristics of collective bargaining from the parameters of a system of equations, consisting of the production function and the derived demand functions of the production factors, estimated at the firm level using data from AMADEUS. These allow us to construct an indicator of the bargaining power of the trade unions, as well as an indicator for the trade union's orientation in the bargain (i.e. the preference of wages relative to employment).

As an indicator of the innovation efforts, we used in the first place the research and development (R&D) expenditures from the ANBERD database (OECD). Yet, these are more representative for the innovation efforts of manufacturing firms and less for those of service firms. In many situations, innovation efforts in service firms are less formally separated from the production activities or take a different form, like the introduction of new types of services. An alternative indicator which seems more representative for the innovation efforts in the service sectors is ICT investments, which are available from EU-KLEMS. In general, ICT is considered as an important leverage of process innovation, in the service sectors in particular.

Descriptive analysis.

Based on the indicators we constructed, we arrive at the following observations.

1. Competition in Belgium is on average lower than in the EU countries for which a comparison was possible. Notwithstanding, a tendency towards convergence in competition intensity between Belgium and the other EU countries is present.

Degree of competition in Belgium and six EU15 countries, averages 1997-2004

	Belgium	EU-6[1]
Manufacturing	2.02	2.33
Public utilities, building and services	1.11	1.34

Source: AMADEUS, own calculations
[1] Finland, France, Italy, Spain, United Kingdom, Sweden

2. Sectors with a high competition intensity are the textile sector, wood, transport material and the electronic machinery sector, i.e. four manufacturing sectors. Sectors with a relative low degree of competition are the paper industry, the food and beverages sector, real estate, financial services, utilities, gross and retail trade and the sales and repair of motor vehicles, i.e. mostly the service sectors.

3. The estimated degree of trade union bargaining power is comparable over countries with a relatively low and high degree of market competition (e.g. the United Kingdom and Sweden, respectively). Union power seems to remain fairly constant in the period considered (1997-2005), despite the global increase in competition.

4. In the countries considered, the trade unions seem relatively more wage than employment oriented in the bargaining, which neither varies in terms of market competition.
5. In the period considered, there is a general increase of the R&D and ICT intensity at the sector level. However, this observation does not apply to all the sectors and the increase of R&D and ICT intensity does not seem to vary according to the competition intensity by sector. The innovation indicators considered seem complementary insofar as the level of the R&D expenditures in manufacturing exceeds the level in the other sectors, whereas the opposite applies for ICT intensity.

Statistical analysis.

A more in depth analysis, in particular, an econometric analysis of seven EU-countries (Belgium, France, Spain, Italy, Finland, Sweden and the UK) using the averages of the variables by sector, shows :

1. competition has a significant positive effect on innovation efforts, which is robust for introducing a time lag in the effect of competition on innovation, for estimation with instrumental variables and for using two alternative indicators of market competition : profit elasticity and average profitability
2. trade union bargaining power does not significantly affect innovation efforts. Also this finding is robust for estimation alternatives.

However, a separate analysis for the manufacturing and the non-manufacturing sectors (utilities, construction and services), indicates that these results must be qualified somewhat.

- There are substantial differences in the functional form for the manufacturing and non-manufacturing sectors. For the latter, strong signs of non-linearities in the relation are present.
- For the manufacturing industries, the conclusions of the analysis remain rather well in line with those of the overall analysis. For the non-manufacturing industries, the positive effect of competition on the R&D expenditures seems in the first place relevant for sectors that are more distanced from the technological frontier. More competition in the non-manufacturing sectors would increase the incentive of catch-up for sectors that technologically are lagging behind.
- The effect of union bargaining power in the non-manufacturing sectors is non-linear : bargaining power stimulates the R&D expenditures and reaches its maximum at an intermediate level, after which it falls with increasing bargaining power and, eventually, may become negative.

Implications for economic policy.

From the policy perspective, our findings imply that market liberalisations that increase market competition have a positive effect on innovation efforts. Innovation efforts can be stimulated more by fostering market competition, the more so because the determination of wages and labour conditions from collective bargaining does not seem to constitute a specific obstacle.

In the non-manufacturing industries, this conclusion is qualified amongst others by the international technological position of the sector.

In internationally less efficient sectors, more competition can stimulate innovation efforts. However, as a sector shifts to the technological frontier, a Schumpeterian effect (net profits as incentive of innovation) gains in weight. Therefore, an accurate indication of a sector's international efficiency position is required for economic policy at the national level. In addition, the effect of collective bargaining on innovation efforts in the non-manufacturing sectors can become negative, once the bargaining power exceeds an intermediate level.

*

* *