

Industry in Belgium: past developments and challenges for the future

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Introduction

For more than a century, industrial activity has been the main driving force behind Belgium's economic development. However, for some thirty years, and particularly since the first oil shock, industry has been dogged by questions about its future, while service activities have grown in importance, benefiting especially from the remarkable progress of information technologies. These questions have become all the more pressing in recent times which have been marked by a great deal of uncertainty caused by limited economic growth in the euro area, exchange rate movements and the rapid development of new economic hubs in the global economy.

The international organisations concerned with economic matters, and also various national and regional authorities, particularly in the European countries, have devoted a number of studies and reports to these questions in recent years. In the spring of 2004, the social partners in Belgium asked the Bank to carry out an analysis of Belgian industry in light of the changes it is undergoing and the challenges that lie ahead.

This article summarises all the work done in this connection by the Bank and, on certain points, by the Federal Planning Bureau (FPB). Some of the work that has fuelled the debate has already been the subject of articles included in the Economic Review and other work is likely to be covered in the Bank's publications in the next few months.

This summary is divided into a section that describes and analyses past and recent developments, and a section dealing with the necessary conditions and the action that economic agents must take in order to face up to the challenges of the future. More specifically, the first section analyses the underlying forces to which industry⁽¹⁾ has been exposed throughout the western hemisphere (deindustrialisation and globalisation), highlights the special features of Belgian industry in this context and concludes with an examination of a number of specific forces that are currently at play and which either reinforce the underlying trends or hold sway over them. The second section makes the general assertion that, faced with these forces, which have far-reaching implications for the government, firms and workers, an integrated strategy for maintaining the competitiveness and adaptability of the economy as a whole and, ultimately, its prosperity, is required. It then highlights a number of factors that determine that capacity (private and public-sector investment, human capital, R&D, the financing of business, environmental considerations) before suggesting the way forward for industrial policy, involving the search for synergies within a diverse body of policies.

* The authors wish to thank everyone at the National Bank of Belgium's Research Department, as well as the Federal Planning Bureau, for their contributions to the study which is summarised in this article.

(1) Unless otherwise stated, the definition of industry used in the analysis corresponds to manufacturing industry excluding energy and construction, i.e. the NACE-BEL codes 15 to 37. However, in the direct and cumulative approaches of the input-output tables, industry is defined as the sum of total manufacturing (15-37), excluding refined petroleum products (23), and of mining and quarrying except energy producing materials (13-14), with the aim of creating an "energy" category that represents all energy-related costs (mining and quarrying, refined petroleum products, production and distribution).

1. Understanding structural change in the economy

1.1 Underlying forces

Over the last few decades, the industrial economies have been subjected to some powerful trends, including what are referred to as deindustrialisation and globalisation, both of which have had a particularly marked effect on industrial activity. In all of these countries, these phenomena have exerted similar pressures leading to a considerable change in the structure of the economies and the way in which the production process is organised.

1.1.1 Deindustrialisation

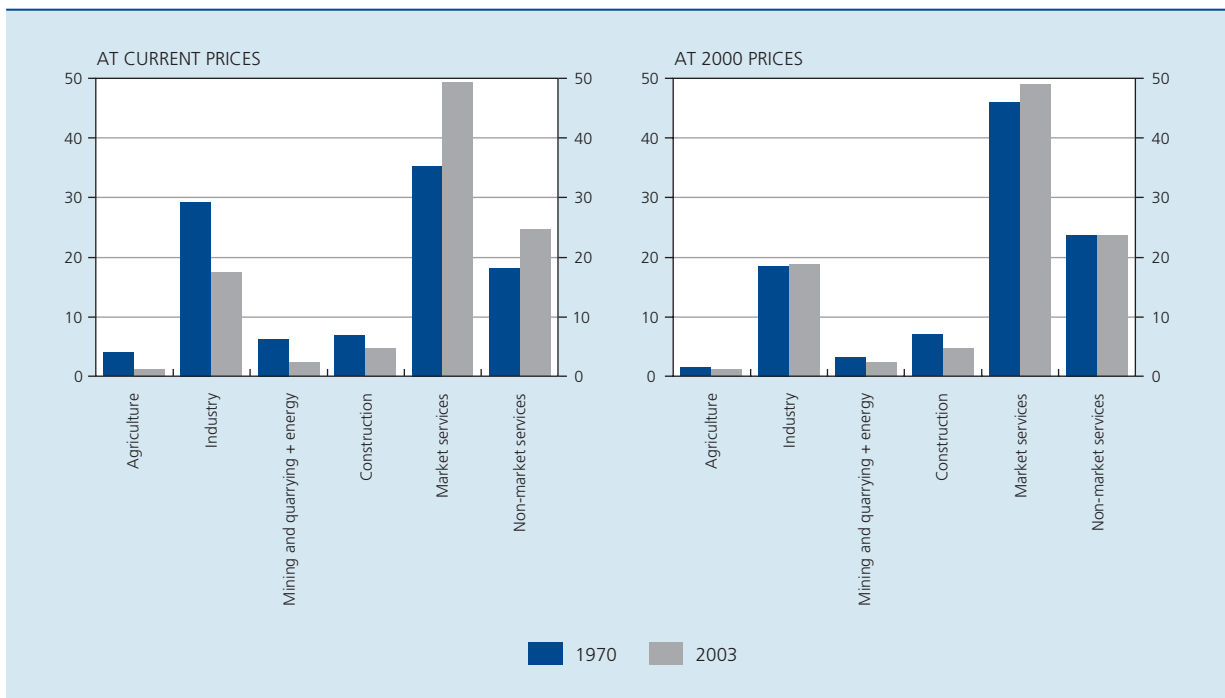
The phenomenon known as deindustrialisation refers to the sectoral changes that have been taking place for several decades. These are most clearly manifested in the transfer of activities and jobs from industry to services, radically changing the structure of the economy which is now dominated by the service sector: in Belgium, the share of services in total value added at current prices increased from 53.4 p.c. in 1970 to 74 p.c. in 2003, largely to the detriment of industry, whose weight declined from 29.3 to 17.4 p.c.

However, deindustrialisation must be viewed as relative rather than absolute, since industrial output has continued to grow. Moreover, the growth in the volume of activity in industry has been on a par with that of market services⁽¹⁾ or the economy as a whole. Thus, measured at constant prices, the weight of the main categories of activity in total value added in the economy has changed little, if at all, over the last thirty years. Moreover, industry retains considerable importance in some key areas, such as foreign trade and business R&D, in both of which it accounts for more than 80 p.c. of the economy's total.

The forces underlying these sectoral shifts stem from both the demand and supply sides. Thus the profile of private consumption appears to be shifting in favour of services, depending on the degree of development of the economy in question. Aside from the nominal effect of the slower rise in industrial prices compared with those for services, a degree of saturation as regards industrial products seems to go hand in hand with rising incomes, whereas demand for services would appear to be supported by a number of socio-demographic developments: the greater participation of women in the labour market creates demand for childcare services; the ageing population results in greater

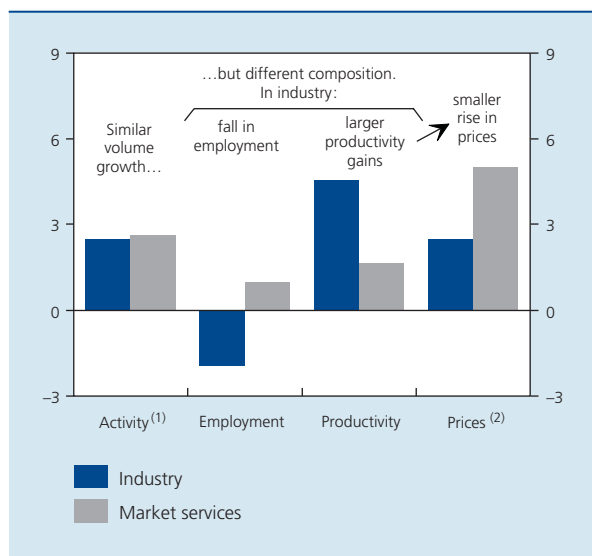
(1) Defined as NACE-BEL branches of activity 50 to 74.

CHART 1 **SECTORAL CHANGES IN BELGIUM**
(Percentages of total value added)



Sources: NAI, OECD.

CHART 2 THE NATURE OF GROWTH IN INDUSTRY AND SERVICES IN BELGIUM
(Percentages, average annual change between 1970 and 2003)



Sources : NAI, OECD.
(1) Value added at constant prices.
(2) Value-added deflator.

demand for healthcare, while also increasing the amount of leisure time available, and, coupled with the liberalisation of the financial markets, has a bearing on demand for financial services. Furthermore, industry has achieved substantial productivity gains that surpass those achieved in the service sector. These productivity gains were made possible by the surge in technological progress, which industry is better placed than services to incorporate swiftly into its production process. The exchangeable nature of industrial products is also significant, as it exposes industrial firms to considerable competitive pressures. Indeed, these pressures are intensified by globalisation, and in particular the opening up of world trade to low-wage countries. They are particularly marked in the more traditional branches of industry, such as textiles and steel, which produce basic goods using a large, low-skilled workforce. Services, on the other hand, have hitherto been sheltered to some extent from international competition, particularly as a number of markets are not yet fully liberalised.

The substantial productivity growth in industry lies at the heart of the mechanism of deindustrialisation, because it allowed for a less rapid rise in prices compared with the prices of services, which explains the differences in the development of the share of activity depending on whether it is expressed in terms of value or volume. It also fuelled the growth momentum, while reducing the total number of industrial jobs in Belgium.

In fact, some 565,000 net jobs were lost in industry between 1970 and 2003. But during the same period around 1,115,000 net jobs were created in services, specifically public-sector jobs, until the late 1970s, and after that mainly jobs in the health and social work branches and in business activities. Overall, taking into account the decrease in jobs in other branches, particularly agriculture and mining and quarrying, the Belgian economy has created some 370,000 jobs since 1970.

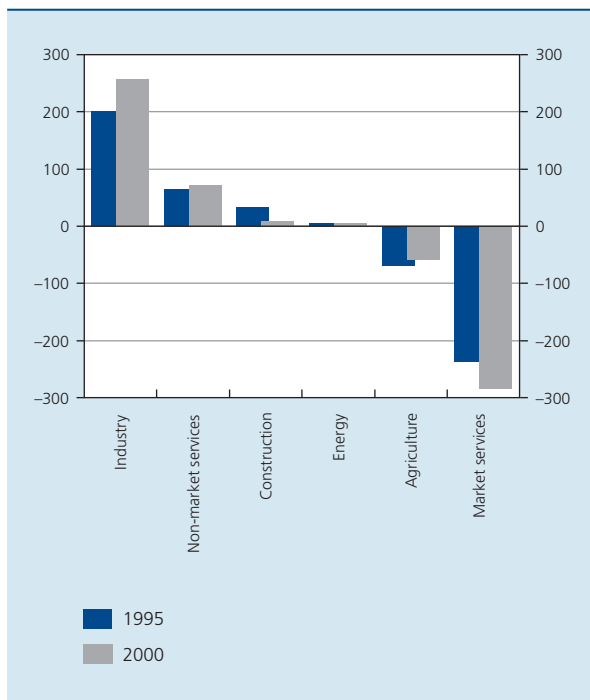
The rapid growth of business activities partly reflects the strengthening of mutual ties between the industrial and service sectors due to sectoral shifts and technological advances. Generally speaking, industrial output depends on the efficient provision of services, whilst those services can take advantage of the technological advances emanating from the industrial sphere to improve their productivity. Moreover, in some respects industry and services are now tending to share features that used to be specific to each of these categories of products and their production process, making their distinction blurred and, in some cases, superfluous. On the one hand, technological progress allows for the separation of production and consumption of a service in time or space, thereby making its storage and transportation possible. On the other, the production of industrial goods is becoming more and more personalised depending on the user's needs.

In its ever-increasing search for efficiency, industry is focusing on its core business, by outsourcing secondary administrative, logistical or organisational tasks, and this effectively entails a transfer of activities and jobs to the service sector. Consequently, the value added generated by the business activities branch showed sustained average annual growth of 3.6 p.c. between 1980 and 2003, compared with GDP growth of 1.9 p.c. Moreover, French industry made increasing use of temporary personnel during the 1990s (DATAR, 2004), thereby reducing the number of jobs recorded in industry and, consequently, raising its productivity, as temporary personnel are registered as service providers (Gonzalez, 2002⁽¹⁾). It can be assumed that this phenomenon was also relevant in Belgium, given that during the latter half of the 90s, the share of industry in temporary work was higher than in previous years.

All in all, the relationships between branches of the economy are such that many non-industrial jobs depend on industrial activity. Besides, of the major categories of activity, industry is the branch that entails the greatest number

(1) This study shows that, between 1996 and 2000, growth in apparent labour productivity in industry could be overestimated by 0.5 to 1 percentage point a year, relative to a corrected index that takes account of temporary labour in industry, in terms of both value added and employment.

CHART 3 DIFFERENCE BETWEEN CUMULATIVE EMPLOYMENT AND OBSERVED EMPLOYMENT⁽¹⁾
(Thousands of salaried and self-employed workers)



Sources: NAI, NBB calculations.

(1) Figures based on the input-output tables. Here, industry and energy are defined according to the concept used for the analysis of these tables.

of indirect jobs. The input-output tables indicate that, in 2000, the cumulative employment required to produce industrial goods exceeded employment observed in the industry branch by 257,000 units (Cornille and Robert, 2005). This means that jobs in other branches used indirectly for the production of industrial goods far exceeded the industrial jobs assigned indirectly to other types of production. In particular, industry entailed the creation of 268,000 market-service jobs, some 115,000 of those in business activities and 62,000 in the wholesale trade.

Since 1980, industry has made ever-increasing use of market services, and business activities in particular, and this continued to be the case in the most recent period. Thus the number of market-service jobs that depend on industry rose from 214,000 in 1995 to 268,000 in 2000, which means that industry helped create 54,000 of the 143,000 jobs generated in market services during that period. In fact, for many industrial goods, the second-round effects of production on market services have

(1) The drawback of the input-output tables is that they are expressed at current prices, which hinders the interpretation of changes from one year to the next.

increased significantly and, for the whole of industry, rose from 25 to 30 centimes per euro of production of industrial goods between 1995 and 2000. The result of this was that the share of intermediate consumption of market services in the cumulative cost of production of industry climbed from 16.6 to 18.7 p.c. – growth which cannot be readily explained by the differences in the development of prices⁽¹⁾.

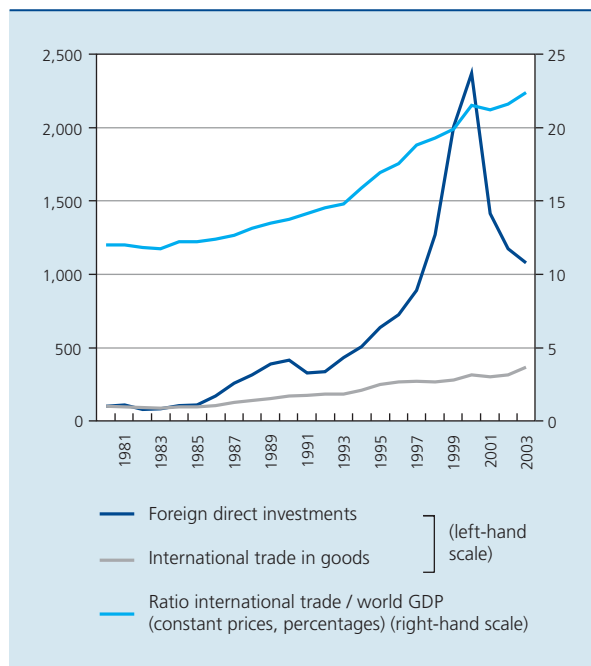
1.1.2 Globalisation

The other major trend that has profoundly altered the environment in which industries develop is the globalisation of the economy; this should not be seen separately from the structural changes, behind which it has been a key factor.

The notion of globalisation refers to the wave of rapid internationalisation of the global economy, which has occurred on various fronts over the last few decades: international trade (which multiplied by 3.5 between 1980 and 2003), capital flows (foreign direct investments increased eleven-fold during the same period, having peaked in 1999 and 2000 due to the spate of mergers & acquisitions), information flows and production organisation. This globalisation was driven by a policy of liberalising national markets, particularly financial markets, and by the conclusion and implementation of numerous multilateral (WTO) and regional agreements (ASEAN, EU, MERCOSUR, NAFTA) which increasingly led to the opening up of the markets for goods and services and capital. In addition to the trade in goods, this liberalisation gradually extended to services, with domestic markets opening up to foreign service providers. However, internationalisation on this scale would have been inconceivable without the technological advances that significantly reduced the costs of transporting not just goods and people, but information as well. In addition, it has taken place mostly through multinational firms which, according the UNCTAD's World Investment Report 2002, accounted for two thirds of global trade in the second half of the 1990s.

These developments triggered a fundamental and ongoing reorganisation of the way in which western industries function. Indeed globalisation makes for a more efficient distribution of the production process, thereby enabling the economies in question to raise their level of productivity and prosperity. Moreover, the opening up of new and fast-developing markets presents great opportunities for expansion. In the case of the countries of central and eastern Europe, this effect was magnified by their geographical proximity and the prospect of integration in the European single market. In China's case, it is the sheer size of the potential market that matters. For consumers,

CHART 4 FOREIGN DIRECT INVESTMENTS AND INTERNATIONAL TRADE IN GOODS
(Current prices, indices 1980 = 100, unless otherwise stated)



Sources : OECD, UNCTAD.

the intensification of international trade opens up a wider range of reasonably-priced goods and services.

In macroeconomic terms, the consequences of globalisation, i.e. the rising level of development of the emerging countries, resulting in increased demand, and achieved productivity gains also benefit the developed economies. Admittedly, however, the opening up of borders and the emergence of new players on the global economic stage might pose a threat to some areas of activity and force companies to make some difficult changes. In the past, competition from low-wage countries was keenly felt by some branches of activity categorised as traditional, insofar as they mass-produced standard goods with low value added. The usual response tended to be that the western industries should specialise in the higher value-added products or segments of the production chain. Recent developments, however, are beginning to render such specialisation somewhat obsolete, insofar as they entail increased “all-out” competition: some of the low-wage emerging countries have potential reserves of manpower which are far greater than the levels Portugal or the central and eastern European countries had available to them in the past; some of these new players are competing in the field of high-tech products (Hungary, Czech Republic); relocation now extends to services as well (IT, call centres, etc.)

which were long thought to be sheltered from this trend; and, finally, there is still increasing competition among the western countries, developing similar forms of production.

Consequently, whilst the theory of comparative benefits continues to be valid in terms of explaining the relative specialisations of the different countries, it now applies to a wider range of elements involved in the production process: not just the supply of natural resources or production factor volumes, but also human capital, technological potential, etc. It now implies a qualitative international division of labour, with economies ranked according to product type (traditional vs. high-tech), or within a range of products – or even, for a single product, according to the degree of complexity and value added of the production stage. Consequently the value-added chain is becoming increasingly segmented, particularly under the influence of the multinationals which are able to optimise their production processes at global level. This segmentation also entails specialisation by function within the production process, whereby the design and distribution of a product are the preserve of the western economies, based on their supply of skilled human capital, and the intermediate stage of mass production is undertaken, at the lowest cost, by the low-wage countries (Henriot, 2004).

From an international trade perspective, these developments have led to the growth of intra-regional and intra-industry trade. This trend can be observed in every country, including Belgium, where intra-industry trade has always been particularly important due to the processing nature of industry: in 2001, 88.9 p.c. of industry’s foreign trade was generated by industry itself, compared to 73.4 p.c.

TABLE 1 INTERNATIONAL INTRA-INDUSTRY TRADE
(Percentages of industry’s foreign trade⁽¹⁾)

	1961-1970	1991-2000	2001
Euro area ⁽²⁾	52.6	71.6	73.7
Germany	54.6	76.5	76.7
France	76.4	86.5	85.6
Netherlands	78.5	87.9	87.4
BLEU/Belgium ⁽³⁾	73.4	85.4	88.9
United States	57.4	71.8	71.8
Japan	34.8	50.0	58.0

Sources: OECD, NBB.

(1) Grubel-Lloyd index, which indicates the extent to which the structure by product is the same for both imports and exports.

(2) Non-weighted average of intra-industry international trade of the twelve euro area countries.

(3) BLEU for 1961-1970, Belgium thereafter.

in the 1960s. Therefore, activity in terms of trade and competition takes place mainly between countries in close proximity offering similar products rather than with low-wage countries in distant parts of the world.

1.2 The position of Belgian industry

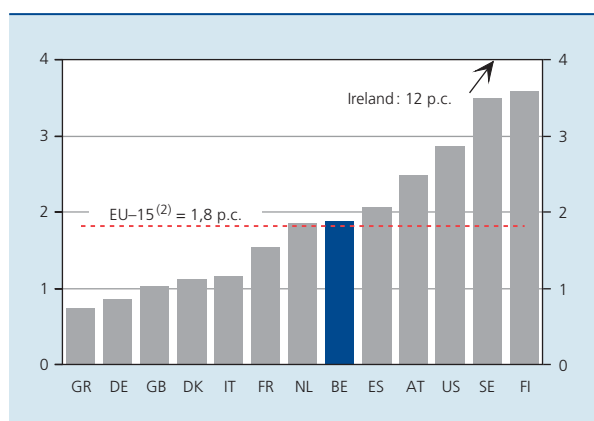
1.2.1 Common features

Belgian industry has not escaped the underlying forces which have just been discussed, so both its recent history and current situation display many similarities with those of the other European countries. In Belgium, deindustrialisation has been both relative, in that it has involved a decline in the weight of industry in the economy's nominal value added, and absolute in its impact on jobs. At the same time, industrial activity grew in real terms by an average of 1.9 p.c. per annum between 1980 and 2003, outpacing the big European countries. Nevertheless, it has proved less dynamic than in other small, open economies such as Austria and some of the Scandinavian countries.

Based on its current direct weight in the economy's total value added (18.2 p.c. in 2002), the position of industry in the Belgian economy is average for the EU-15. On the one hand, the Belgian economy appears to have a less dominant service sector than the major economies that are very advanced in this field, such as the United Kingdom or the United States, where industry now accounts for no more than 15 p.c. of GDP. On the other, industry plays a less prominent part in Belgium than in other major economies

CHART 5 GROWTH IN INDUSTRIAL ACTIVITY IN THE EU-15 AND THE UNITED STATES

(Average annual percentage change in industry's value added at constant prices, 1980-2003⁽¹⁾)



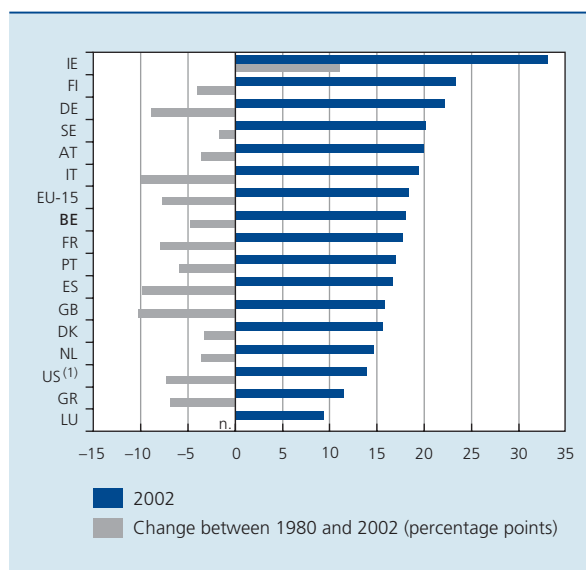
Sources: GGDC, NAI, OECD.

(1) Until 2002 for Ireland and the United Kingdom and until 2001 for the United States.

(2) Non-weighted average, excluding Ireland and countries not listed.

CHART 6 THE POSITION OF INDUSTRY IN THE ECONOMY

(Percentages of total value added at current prices)



Sources: GGDC, NAI, OECD.

(1) 2001.

such as Italy or Germany or some small countries where it is newer and based largely on high-tech sectors (Ireland, Finland, Sweden); in these countries, the share of industry is often significantly greater than 20 p.c.

The relative importance of industry varies greatly across the country's three regions. In 2003, more than 70 p.c. of the value added of Belgian industry was generated in Flanders. Aside from this region's total weight in the economy, it is also the region with the greatest reliance on industry, which accounts for 21.6 p.c. of the region's activity. The share of industry in Wallonia's value added is slightly below the national average. Lastly, due in particular to its specific status as a metropolitan region, the Brussels region has the most atypical structure, with market services accounting for a weight of over 60 p.c. compared with less than 50 p.c. for the country as a whole; consequently, industry represents just a little over 6 p.c. of activity in that region.

Besides having a similar total weight in the economy, Belgian industry displays a relatively similar structure to the average in the other EU-15 countries; generally speaking, the differences in specialisation between these countries are fairly small (ECB, 2004). Nevertheless, Belgian industry does have a number of special features, the most notable being the preponderance of chemicals. Having experienced the most vigorous growth of all branches of industry during the last two decades, the chemicals branch

TABLE 2 THE STRUCTURE OF INDUSTRY IN BELGIUM AND IN THE REGIONS IN 2003

(Percentages, current prices)

	Flanders	Wallonia	Brussels	Belgium
Share in value added of Belgian industry	71.1	22.0	7.0	100.0
Share of industry in the total value added of the economy	21.6	16.3	6.3	17.4
<i>Structure (selected branches, share in the value added of industry):</i>				
Chemicals	20.1	21.5	12.9	19.9
Metallurgy	14.0	16.9	7.0	14.1
Transport equipment	9.7	3.5	15.4	8.7
Electrical and electronic equipment ⁽¹⁾	7.3	6.4	6.8	7.1
Non-metallic mineral products (not including rubber and plastics)	3.6	12.0	3.6	5.4

Source: NAI.

(1) Notably office machines, computers, electrical apparatus, radio, television and communication equipment, medical and precision instruments.

represented 19.8 p.c. of industry's value added in 2002, compared with an average 10.6 p.c. in the other EU-15 countries. This branch, which includes the pharmaceutical sector, is in many respects vital to Belgium's industry and economy. It typifies its specific features, in particular the heavy capitalisation of production, high productivity and large foreign financing through the involvement of multinationals. Moreover, the chemicals branch occupies a similar position in the country's two most industrial regions, although its weight is a little greater in Wallonia than in Flanders. Furthermore, although Flanders has a structure which, overall, is much the same as that of the country as a whole, Wallonia exhibits a distinct specialisation in non-metallic mineral products, offset by the under-representation of the transport equipment branch, which is over-represented in Flanders, and especially in Brussels.

Compared with the other countries of Europe, Belgium is also notable for its relative shortage of more technological products: the electrical and electronic equipment branch totalled 7.4 p.c. of industrial value added in 2002⁽¹⁾, against an average 11.6 p.c. in the EU-15 countries. Moreover, Belgium is one of those rare countries where this branch has not made one of the biggest contributions to the growth of industry in recent years. Yet the development of such activities and the technologies they produce, and also their dissemination across all branches including services, go hand in hand with a strengthening of both productivity and competitiveness of the advanced economies. In Finland and Ireland, which are among the few European economies that have a more specialised

(1) This weight moves within a range of a little more than one percentage point across the country's three regions, with Wallonia lagging behind Flanders and Brussels.

TABLE 3 THE SPECIALISATION OF INDUSTRY IN BELGIUM COMPARED WITH THE EU-15 IN 2002

(Percentages of industry's total value added at current prices)

Over-representation	Belgium	EU-15 ⁽¹⁾	Under-representation	Belgium	EU-15 ⁽¹⁾
Chemicals	19.8	10.6	Electrical and electronic equipment ⁽²⁾	7.4	11.6
Metallurgy	14.1	11.8	Paper and publishing	7.7	10.6
Transport equipment	8.9	6.7	Machine tools, industrial machinery	6.4	8.5

Sources: NAI, OECD.

(1) Excluding Spain and Sweden.

(2) Notably office machines, computers, electrical apparatus, radio, television and communication equipment, medical and precision instruments.

industrial structure, this branch occupies a dominant position of around 22 to 25 p.c.

1.2.2 Distinctive features

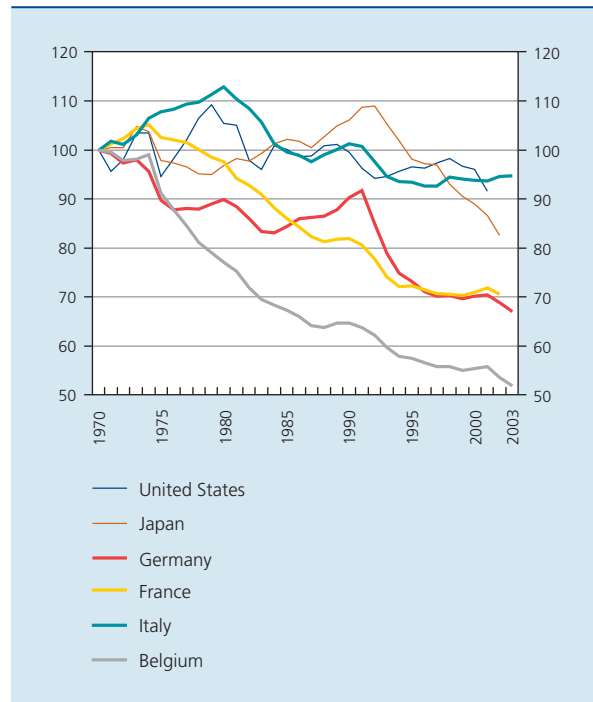
Although the development of industrial activity in Belgium has mirrored that of other industrialised countries, this has been at the cost of greater adjustments having to be made to the production process. The decline in industrial employment started earlier and was much more pronounced in Belgium than in the other countries, after the oil shocks led to a loss of competitiveness: between 1970 and 2003, the number of jobs fell by 48 p.c. in Belgium, compared with a decline of around 30 p.c. in Germany and France, and of less than 10 p.c. in the United States and Italy. Globally, a comparison between the United States and Europe reveals that, although the same basic trends have dominated on both sides of the Atlantic, in Europe the adjustment in industry mainly affected the level of employment whilst in the United States the effect tended to be on wages (Rowthorn and Ramaswamy, 1997).

In fact, because of its degree of openness and its specialisation in the production of intermediate goods, allied with high labour costs, Belgian industry has, even more than elsewhere, been motivated to achieve major productivity gains and to undertake rationalisation investments. Consequently, it is notable for its high levels of labour productivity and capitalisation.

This rationalisation has been widespread given that, in the majority of industry branches in Belgium growth in activity has been sustained by productivity gains against a backdrop of falling employment. However, the good performance of industry as a whole masks the patchy development of the different branches. The branches that have grown most rapidly owe this fact to the extent of productivity gains achieved and broadly stable employment. Conversely, the weaker growth of some branches is due to more extensive restructuring in terms of employment, which have been offset to a lesser degree, if at all, by productivity gains. These heterogeneous performances have distinctly altered the structure of Belgian industry and explain the strong growth of the chemicals sector, for instance.

Although, from a European perspective, Belgian industry does not have an atypical structure, it does exhibit a specialisation in the production of semi-finished goods. This processing nature results in a lower value-added component of production compared with the other EU countries, insofar as this type of production requires an extensive use of basic products for intermediate consumption,

CHART 7 EMPLOYMENT IN INDUSTRY
(Indices 1970 = 100, number of people employed in industry)

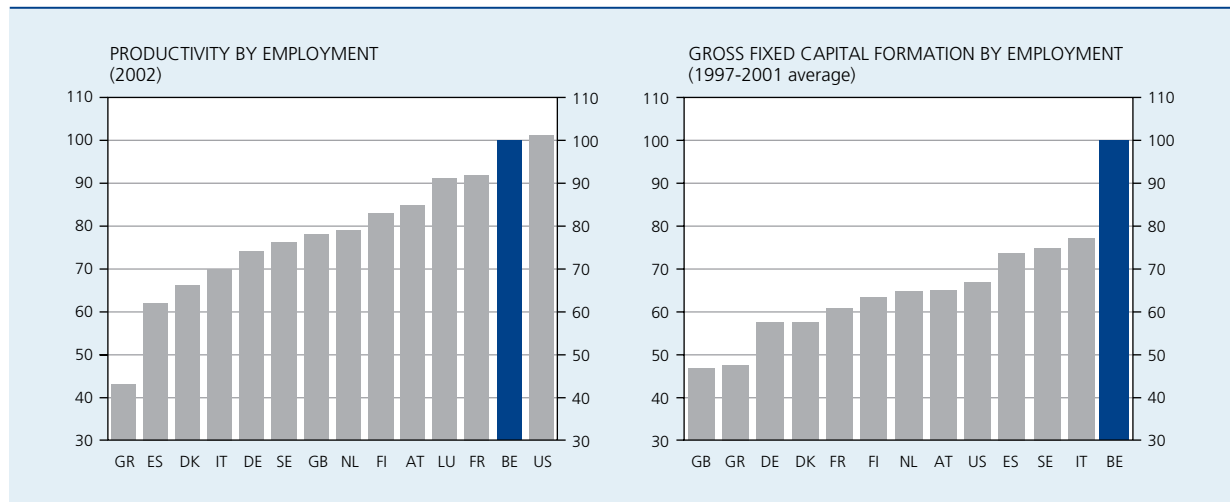


Sources: NAI, OECD.

whereas the subsequent stages and resulting value added are taken care of by the final producer. The ratio of value added to production, which in recent years has been close to 25 p.c., was 3 to 8 percentage points below the level achieved by the other countries. This weakness across the whole of industry can only to a very small extent be explained by an unfavourable structure, because it also manifests itself at individual branch level. Moreover, it is still apparent if all the relations between the domestic branches involved in the production of industrial goods are considered, and this is due to leakage effects outside the national economy – through imports – that are more pronounced than elsewhere. The greater dependence on energy than in the other European countries also serves to increase intermediate consumption and limit the share of value added in production. In this respect, the industrial structure does have an effect, as two of Belgium's three major branches – chemicals and metallurgy – are among the largest users of energy. Lastly, compared with other small economies for which data are available, industry in Belgium seems to make slightly greater use of market services, a sign of a higher level of outsourcing of activities that are deemed peripheral to the core business, which fuels its intermediate consumption.

CHART 8 LABOUR PRODUCTIVITY AND CAPITAL INTENSITY IN INDUSTRY

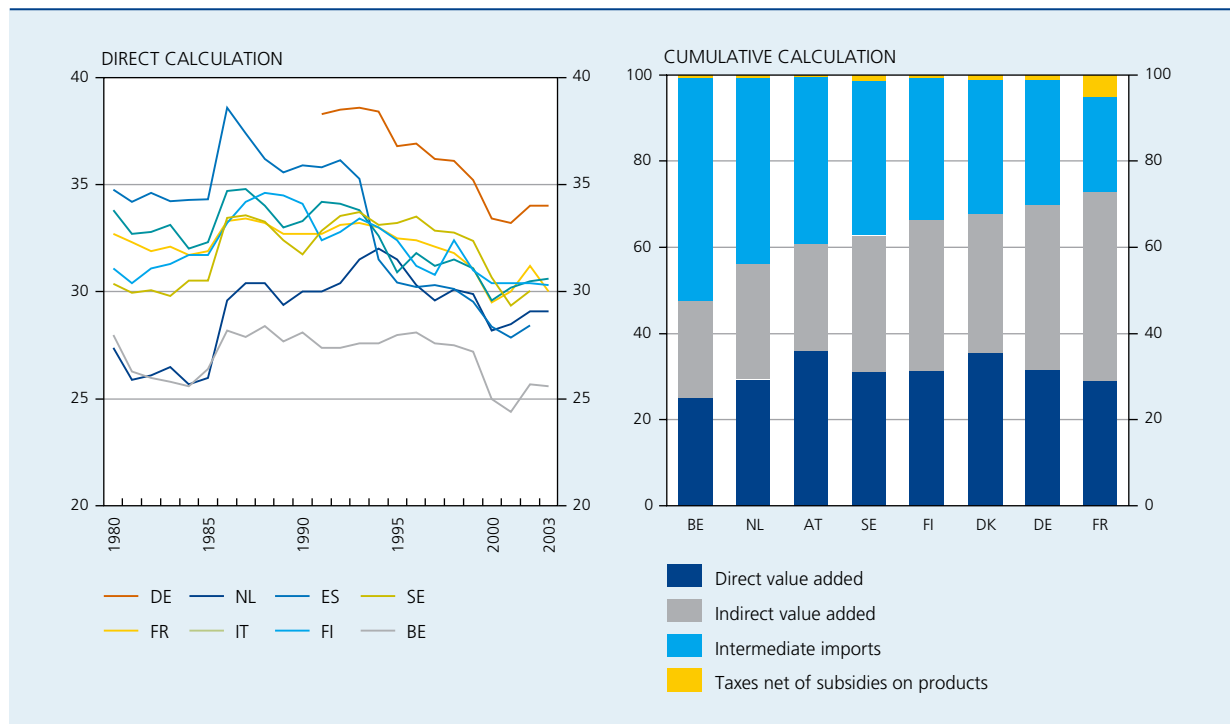
(Indices Belgium = 100, purchasing power parities based on GDP against the US dollar)



Sources: NAI, OECD.

CHART 9 VALUE-ADDED CONTENT OF INDUSTRIAL OUTPUT ⁽¹⁾

(Percentages of output)



Sources: EC, NAI, OECD, NBB calculations.

(1) The direct calculation relates industrial value added to industrial output, as observed in the annual national accounts. By going up the production chain, the cumulative calculation takes account of both the value added generated directly by industry and the value added generated indirectly by all branches of the economy as a result of their output for intermediate consumption by industry. As specified in the introduction, in the cumulative calculation based on the input-output tables the delimitation of the branches of industry differs somewhat from that generally used in this article.

1.3 Specific features of the current situation

1.3.1 Globalisation gathers pace

The enlargement of the EU to include ten new Member States (NMS) on 1 May 2004 and the rapidly increasing power of large emerging economies such as China and India have further highlighted the effects of globalisation, which are now encroaching on activities that were long thought to be sheltered from this trend. In a context of weak economy with an appreciating currency, fears are rife in Europe that the decline of industry might gather pace, or worse, that this latter could disappear altogether, and the debate about the threat of relocations has resurfaced, even extending beyond the industrial sphere. Considering its reliance on trade and foreign capital, are Belgium's industry and economy particularly vulnerable? Or are they able to play their part in the emerging economic order?

Relocations

It should be pointed out that, for our purposes, relocations should be understood as the cessation of an activity in the national economy with a view to replacing it with production carried out abroad⁽¹⁾. Relocations may involve foreign direct investments (FDI) in order to develop exactly the same activity abroad, or recourse to sub-contracting or imports. However, production activities may cease for plenty of reasons other than relocation, which must be viewed as just one manifestation of the structural changes that go hand in hand with economic development. As a direct result, relocations give rise to job losses and require adjustments within the economy, be it between regions, branches or job categories. Ultimately, however, they can also ensure the survival of a business, and therefore the safeguarding of existing jobs or the creation of new activities or new jobs.

Generally speaking, the available studies suggest that the impact of relocations has been relatively limited thus far. According to the studies cited by Grignon (2004), they accounted for around 4 p.c. of outgoing French FDI between 1997 and 2001 and caused 2 p.c. of job cuts involving more than 50 people in the United States between 1998 and 2003, whereas investments in the countries of central and eastern Europe brought about the loss of 90,000 German jobs between 1990 and 2001. Based on microeconomic data, Aubert and Sillard (2005)

estimate that, between 1995 and 2001, 0.35 p.c. of French industrial employment was relocated each year, a little less than half that figure to the emerging countries.

Nor, based on recent figures on FDI and foreign trade which only provide an overall, indirect picture of this phenomenon, does Belgium appear to have witnessed any surge in relocations in recent years.

Overall, the Belgian economy is still attracting foreign investment. According to balance of payments data, which record international flows of funds relating to investment transactions⁽²⁾, the Belgian economy has been a net beneficiary of FDI, with amounts of foreign investment in Belgium exceeding Belgian investments abroad by 0.7 p.c. of GDP per annum on average between 1995 and 2003, compared with 0.1 p.c. of GDP in the United States and net outflows of 0.9 p.c. of GDP for the whole of the EU-15. By way of comparison, the NMS and China recorded much larger net inflows over the same period, amounting to a little more than 4 p.c. of their GDP.

Whilst net inflows of capital from direct investments have fluctuated within a narrow band, gross flows of FDI into Belgium and of FDI from Belgium to other countries have grown very fast since 1995, fuelled by the service sectors. These operations have been stimulated by market liberalisation, especially in the field of telecommunications, and by technological developments. They took the form of a spate of mergers & acquisitions around 2000, at a time when the stock market was rising rapidly.

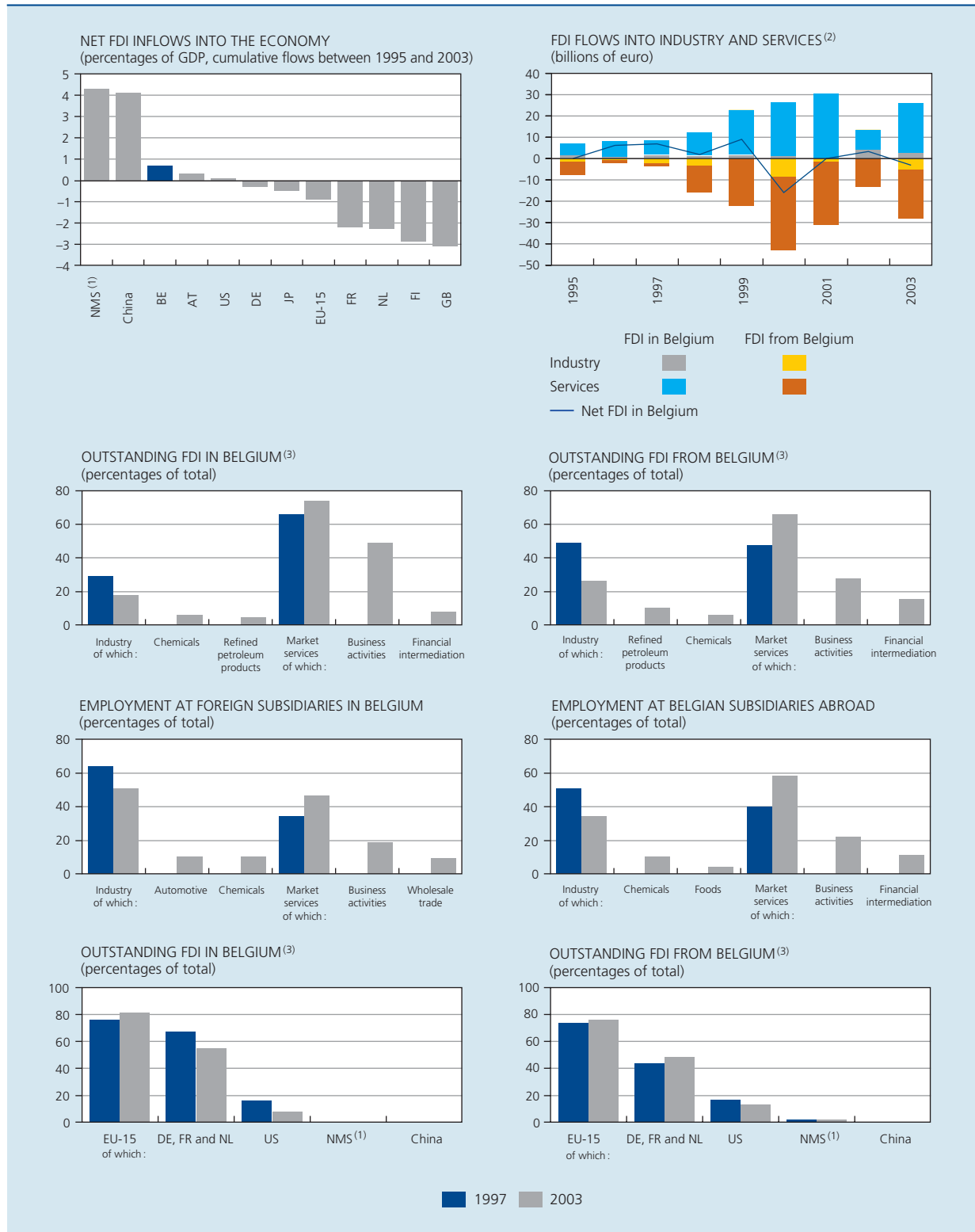
In the space of a few years, the share of market services in the total volume of FDI has increased markedly to the detriment of industry: in 2003, the former totalled 74 p.c. of incoming FDI and 65.8 p.c. of outgoing FDI respectively. Aside from the importance of financial intermediation services, the bulk of these FDI involves the business activities branch, which includes coordination centres. These and, to a lesser extent, the headquarters of multinationals in Belgium, act as hubs, recording very substantial gross incoming flows in the form of capital contributions by foreign parent companies; these funds are then used to grant loans to the various group companies, which constitute outgoing flows.

The recording of FDI on a financial basis sometimes distorts the real size of those investments in terms of activity and employment. However, the statistics recording employment at subsidiaries established abroad (FATS) also reveal the growing importance of services in FDI, albeit less so than in the volume of FDI. Thus foreign subsidiaries established in Belgium still employ more workers in industry than in services, with the chemicals and automotive sectors leading the way. In 2003, business activities

(1) For a discussion of the different meanings of the term "relocations", see inter alia Drumetz (2004), Grignon (2004) and Henriot (2004).

(2) The balance of payments records FDI in accordance with the specifications set by the IMF, which defines FDI as the acquisition of a lasting interest (conditional on the holding of at least 10 p.c. of the ordinary shares or voting rights) by an entity domiciled in an economy in an enterprise domiciled in another economy. Therefore, these statistics, which are purely financial in nature, do not necessarily tell us much about investments in physical capital.

CHART 10 FOREIGN DIRECT INVESTMENTS (FDI) FOR BELGIUM



Sources: UNCTAD, NBB.
 (1) Ten new EU Member States.
 (2) Excluding reinvested profits.
 (3) Equity only.

accounted for just 19 p.c. of jobs at these subsidiaries, compared with almost half of the volume of FDI in Belgium. Overall, employment at these subsidiaries of foreign firms represents a slowly rising proportion of total employment, rising from 13.2 p.c. in 1997 to 16.3 p.c. in 2003. As regards the sectoral structure of employment at Belgian subsidiaries abroad, this reflects the image presented by financial stocks. Financial services in particular account for a considerable proportion of this.

Looking at the origin and geographical destination of FDI, it is apparent that the vast majority of business links of Belgian firms occurs with neighbouring countries. Consequently, the NMS and China represented just 1.6 and 0.5 p.c. respectively of Belgian FDI abroad in 2002. With regard to FDI in Belgium, however, the share of investment originating from the US fell markedly from 16.1 p.c. in 1997 to 8 p.c. in 2003, as a corollary of a substantial rise in investments from Europe. This lower level of US investments went hand in hand with a reduction in employment at US subsidiaries established in Belgium.

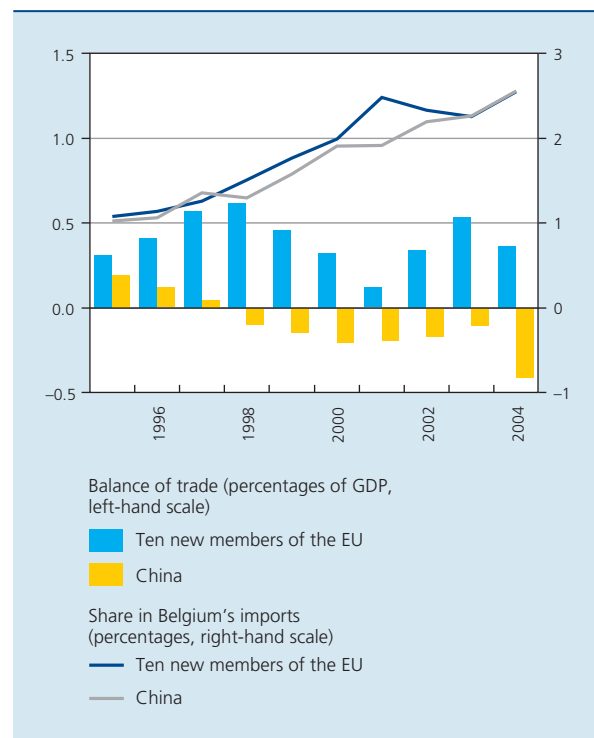
The development of FDI does not simply result from relocations – far from it. Among the various possible causes, “vertical” FDI are designed to achieve efficiency gains, by taking advantage of the differences in production costs between countries, whilst “horizontal” FDI aim to exploit openings on the markets in which they are made. Insofar as the majority of incoming and outgoing FDI involve neighbouring countries with similar characteristics in terms of resources and factor costs, it is likely that they involve either horizontal investments designed to accede to or acquire a strategic position in adjacent markets or vertical investments in connection with the greater segmentation of the production chain. In this respect, Belgium’s central location, its transport network, the quality of its infrastructures and its highly skilled workforce are attractive to multinationals seeking to centralise their administrative, financial or distribution activities. As regards Belgian FDI abroad, the level of investment in emerging economies such as the NMS and China might beg the question of whether Belgian business is under-represented on these rapidly growing markets. FDI made in the NMS, which tend to focus more on service activities, seem to be predominantly horizontal⁽¹⁾.

Foreign trade statistics are a second source that might indicate the occurrence of relocations, insofar as they ought to entail a rise in imports and a decline in exports.

On this basis, no renewed upsurge in relocations is discernable. The balance of trade recorded by industry shows a comfortable surplus, which is a major factor in the surplus achieved by the economy as a whole. It amounted to some 7.5 billion euro in 2004 and is mainly attributable to the chemicals and food industries.

However, the overall trade surplus of the Belgian economy masks some geographical disparities. It consists of a surplus with the EU and a deficit with non-EU countries as a whole. In particular, the erstwhile surplus with China became a deficit in 1998, which widened sharply in 2004 to 1.2 billion euro. Conversely, the balance of trade between Belgium and the NMS remains positive – in the region of 0.4 p.c. of GDP between 1995 and 2003 – and in fact reached one of its highest levels in 2003. Generally speaking, trade with the NMS and China has intensified to a similar extent; between 1995 and 2004, imports of goods from these two groups of countries increased by around 17 p.c. per annum against growth of 6.4 p.c. in all imported goods. Although rising, the share of these countries in total Belgian imports remains small, however, at around 2.5 p.c. for each group in 2004.

CHART 11 BELGIUM'S FOREIGN TRADE WITH THE EMERGING ECONOMIES



Source : NAI.

(1) According to a survey of Belgian companies that have set up establishments in the NMS, carried out in 2002 by the FBC, 92 p.c. of those companies took this decision in order to gain access to a new market, although the benefits in terms of lower wage costs was also a motive for 55 p.c. of them.

Although they do not point to a spate of relocations in Belgium over the last few years, the indicators used are nevertheless partial and flawed in this regard. Moreover, they predict nothing about the future; a number of surveys have found that the issue of relocation has been considered by a large number of chief executives. Thus, according to the 2004 report of the Conference Board, relocation is one of the main preoccupations of 31 p.c. of chief executives in Europe, as opposed to 24 and 21 p.c. respectively of those heading companies in the US and Asia. Moreover, Belgian firms appear to differ from their European counterparts, as revealed by the latest edition of the UPS Europe Business Monitor survey, published in 2005, which found that 28 p.c. of Belgian firms currently sub-contract abroad, the second highest percentage of the seven countries surveyed after the United Kingdom (33 p.c.). The favourite destinations are China and the NMS (both of which account for 37 p.c. of outsourcing abroad), and the activity most commonly sought is the manufacture of products (42 p.c. of cases). The levels recorded here are higher than in the other European countries.

Whatever the true extent of the relocation phenomenon, the ongoing rationalisation of production processes is a feature in its own right, involving the reallocation of activity and employment. Consequently, in a global environment relocation must be regarded as just one of the manifestations of these structural changes. Some traditional branches, such as clothing, textiles, leather and footwear, have already had to contend with relocations in the past, suffering a decline in their activity, job losses and external trade deficits.

Emerging economies

Recently, the ten new Member States (NMS) of the EU and China have become increasingly integrated in the European and world economy, with strong growth in trade, the receipt of substantial flows of direct investment and a change in their economic structure. Apart from the issue of relocations, the growing power of these emerging economies must be put into proper perspective and the challenges and opportunities this presents have to be defined.

These developments are highly significant for the countries of Europe, albeit for differing reasons. The NMS are distinguished by their geographical and, henceforth, institutional proximity. It is important to remember that, although these countries' actual accession to the EU in 2004 was a significant event, it was just one stage in a process of integration that was already well advanced and is still ongoing. As for China, it is the sheer size of its economy that gives it the status of a special player. Apart from the fact that the country has benefited from

an undervalued exchange rate, China's vigorous growth has hitherto been based more on the volume of production factors at play, underpinned by plentiful reserves of labour, an influx of foreign capital and a very high savings ratio, than on the productivity of those factors.

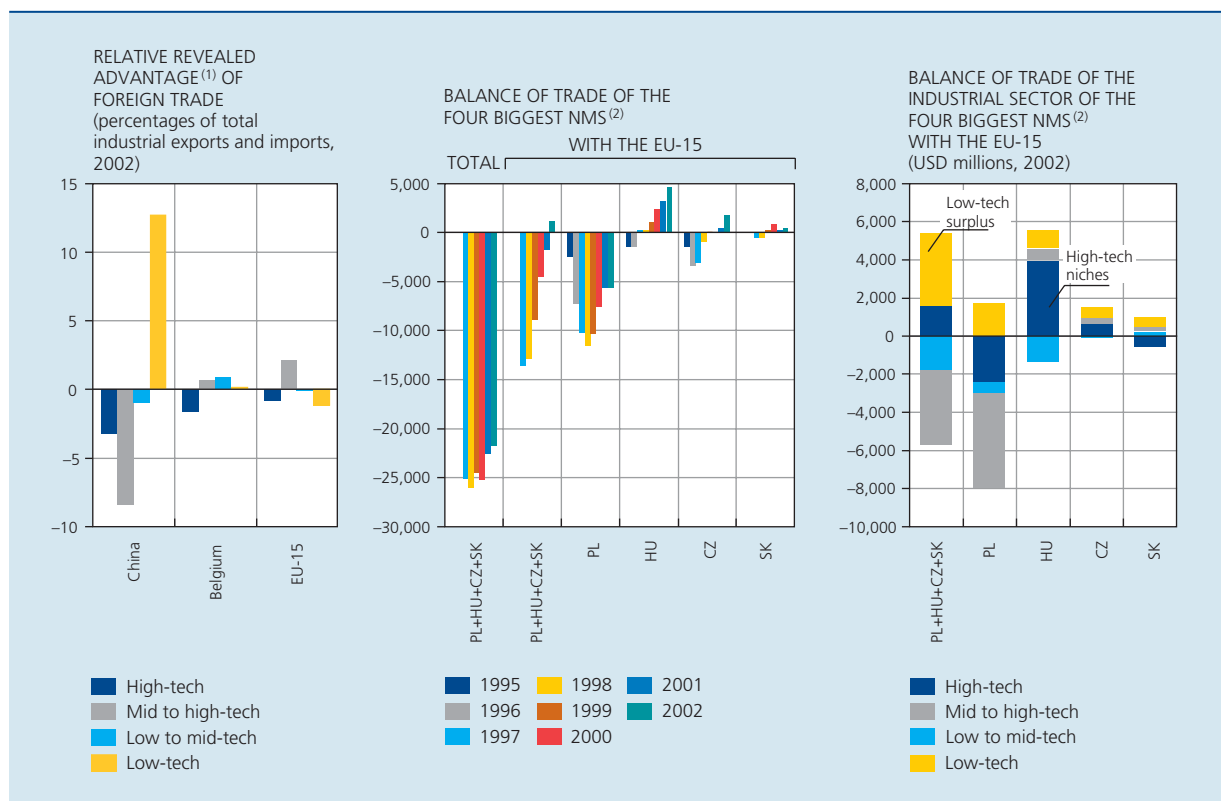
Thus far, these economies have tended to compete with low-tech products. In 2002, the industry branch of the four largest NMS⁽¹⁾ mainly had a trade surplus in this type of goods, largely as a result of the manufacture of furniture in Poland. This is even more true of China which, because of the abundance of production factors at its disposal, has focused on the mass production of low-tech goods requiring a large amount of low-skilled labour. Although, in the wake of earlier relocations and competition from low-wage countries, our industry can hardly be regarded as specialised in this type of goods any longer, the challenge this presents is no less real for the branches concerned – a fact which is borne out by the reaction to the definitive lifting of import quotas for textiles at the beginning of 2005. Playing the role of "Asia's factory", China operates as an assembly country, importing basic components and high-tech products from Japan and other industrialised Asian countries and exporting the finished products to the United States, the EU and Japan. Consequently, it has a trade deficit with these suppliers and a surplus with the economies it exports to, Belgium among others.

However, both China and the NMS are gradually focusing more on the production of higher value-added goods, thereby creating competitive pressure in segments that tended to be thought of as the preserve of the more developed economies. Some NMS, in this instance Hungary, and, to a lesser extent, the Czech Republic, are already moving in this direction, as their industry generates a trade surplus with the EU-15 in high-tech products⁽²⁾. Between 1997 and 2002, the steady increase in Hungary's surplus in radio, television and communication equipment was a major factor, first in the gradual decline of the trade deficit with the EU-15 of the four largest NMS taken together, and then in the surplus achieved in 2002. This new industrial focus, built on FDI and accompanied to a certain degree by a reindustrialisation of the economy, yields parallels with the experience of some of the south-east Asian countries which, with a skilled workforce and low labour costs, had specialised in electronic products.

(1) Poland, Czech Republic, Hungary, Slovakia. However, these countries have differing profiles, as will become apparent later; their grouping is affected by Poland's great weight.

(2) More precisely in radio, television and communication equipment, for Hungary in particular, and in office and computing machinery. Hungary and the Czech Republic have also focused on mid-tech products, i.e. cars and electrical apparatus.

CHART 12 FOREIGN TRADE OF THE EMERGING ECONOMIES



Source: OECD.

(1) Difference between the actual balance of trade of the branches of one type of technology and the balance that would result from the breakdown of the total balance of trade in proportion to the share of these branches in total exports and imports; a positive result indicates that the balance for a given category of products is greater than that category's weight in trade.

(2) Ten new EU Member States.

Generally speaking, it would seem that the NMS are rapidly becoming part of the organisation of the production process on a European scale, as evidenced by the growing proportion of their intra-industry foreign trade. This form of trade already accounts for more than 80 p.c. of all trade in Hungary and the Czech Republic, compared with a little under 90 p.c. in Belgium. Besides the production of increasingly high-tech industrial goods, in future they might also compete in R&D or, in the context of an economy with an expanding service sector, even in the centralised provision of high value-added services for multinationals. This would bring them into direct competition with one of our economy's specialisations.

As for China, it is already moving rapidly towards a more advanced developmental stage, with the emphasis on, among other things, R&D. In 2002, total R&D spending accounted for 1.2 p.c. of GDP, more than in the whole of the NMS or Spain, and was rising sharply. Moreover, in terms of the absolute amount of R&D spending China was ranked 7th in the world, albeit way behind the United

States, the EU and Japan. A relatively unusual aspect about China, compared with other economies that used to specialise in this type of mass production, is its combination of low labour costs and the simultaneous development of research capacities (EC, 2004b). Furthermore, thanks to the substantial flows of direct investment it enjoys, the Chinese economy is rapidly integrating foreign technologies and organisational know-how, while at the same time the State is pursuing a voluntarist industrial policy designed to develop "national champions" that will be able to make their mark in international trade.

However, China's pursuit of rapid economic development will be dependent on numerous factors, including the macroeconomic environment and the stability of the economy and of its banking system, the ironing out of regional disparities, the intensification of the R&D effort, and the creation of effective patent protection laws and of a system for combating counterfeiting.

TABLE 4 GEOGRAPHICAL ORIGIN OF IMPORTS OF THE EMERGING ECONOMIES
(Percentages of total)

From ...	Share of imports of ...			Ten new EU Member States		
	1997	2004	Change	1997	2004	Change
EU-15	13.6	12.4	-1.2	68.1	74.3	6.2
Belgium	0.6	0.6	-0.1	1.9	2.9	1.0
Germany	4.4	5.4	1.1	22.8	28.0	5.2
France	2.3	1.4	-0.9	5.1	5.6	0.6
Netherlands	0.8	0.5	-0.2	2.7	4.4	1.7
United States	11.5	7.7	-3.7	4.3	1.4	-2.9
Asia	36.9	40.8	4.0	6.0	7.1	1.2

Source : IMF.

While the growing power of the emerging economies ultimately presents a competitive challenge to our economies, the latter must also be quick to seize the opportunities offered by the opening up of these markets – opportunities that are considerable in China's case – and by the increasing integration of the NMS within a pan-European production process. FDI statistics are of limited use when assessing Belgium's position in these economies, as the geographical origin of the investment flows is clearly heavily centred on the activities of the financial centres (Hong Kong, the Virgin Islands for China) and the centralist practices of the multinationals (the Netherlands for the NMS). Nevertheless, they do confirm the limited involvement of European countries, and Belgium in particular, in China compared with Japan and the United States. As regards the NMS, where, logically, the European effort is greater, Belgian companies have focused more on financial services, primarily in the Czech Republic, with the aim of establishing themselves on these new markets. In industry, Belgian FDI have focused in particular on the mid and high-tech sectors in the Czech Republic and Hungary.

The involvement of foreign countries in these emerging economies is also manifested in imports from the latter. From this point of view, between 1997 and 2004, the strengthening of China's ties with the rest of Asia is clearly apparent, to the detriment of relations with the United States and the EU-15. Belgium is maintaining its position, which is better than the average for the Union, whilst Germany is making headway. Germany is also in the forefront as regards the increase of the NMS imports from the EU-15, in which Belgium is playing its part too.

1.3.2 The environment that typifies certain industrial branches

Besides the common trends we have discussed thus far, each branch of industry develops in its own environment that may be the source of additional challenges. In Belgium's case, by way of example, the specific context of a number of branches can be highlighted.

The past and current development of the *textile sector* exemplifies the gradual globalisation of a market under the influence of international agreements, as this low-skilled labour-intensive branch has long had to contend with competition from low-wage countries. Major rationalisation drives ensued, as is apparent from the rise in productivity – one of the largest achieved in industry between 1980 and 2003. At the same time, employment was reduced by 72,000 units, the second biggest fall in relative terms among the industrial branches; overall, growth in activity was one percentage point lower than the industrial average. However, Europe's textile industry is now faced with a fresh onslaught of globalisation: the last import quotas were lifted on 1 January 2005, drawing a line under a gradual process of dismantling that began back in 1994. China's admission to the WTO in 2002 profoundly changed the environment, giving rise to fears of a huge influx of competition-busting products from 2005 onwards. While the EC sees a way forward by concentrating on high-end goods, such markets will however not be opened up to European exports overnight.

Steel and glass are two branches that illustrate the processing nature of Belgian industry and which, as a result of mergers & acquisitions, have gradually seen their market taken over by just a few big global players.

Against this backdrop, Belgian companies operating in these areas have been forced to constantly adapt and specialise, by seeking to develop niches.

Meanwhile, *the chemical industry*, which is dominant in Belgium, is one of the most affected by the introduction of various international and European environmental regulations and by the energy issue. The EC has published a white paper on chemical substances, containing the REACH system project. The goal of this project is to create a single framework for assessing the degree to which chemical substances are hazardous and enabling the dissemination of information on the subject, through a central database of companies that manufacture or import more than one tonne a year of a given chemical substance. It relies on the active participation of industry, which would be responsible for performing the assessments and disseminating the information.

The chemical sector will also be called upon to play a major role in achieving the target Belgium has set itself under the Kyoto Protocol: between 1990 and 2001, it accounted for 9 p.c. of greenhouse gas emissions by all economic agents, with industry's total amounting to 34 p.c. of those emissions. Although the chemical sector has made significant efforts by reducing other types of air pollution, at the same time it has markedly increased its emissions of greenhouse gases (by 31 p.c. between 1990 and 2001), which are the only gases targeted by the Kyoto Protocol. In this area, these efforts have only brought about an improvement in terms of eco-efficiency, i.e. pollutant emissions have increased by less than activity. For the whole of Belgium, the Protocol target is a 7.5 p.c. reduction in greenhouse gas emissions by 2008-2012, yet these emissions increased by nearly 10 p.c. between 1990 and 2001. This gives an idea of just how much work still needs to be done, be it in terms of changes to the production process or the costs of buying licences to pollute. The paper and publishing branches, which together account for 7.7 p.c. of industrial activity in Belgium, are another example of an activity that is subject to severe environmental constraints and which will have to show initiative in developing and using clean production processes.

Lastly, although the debate surrounding the future of energy supply and costs affects the whole of industry, it is potentially more pressing for the chemicals branch, which (excluding refined petroleum products) is the largest user of energy. Energy – both raw and processed – made up 9.4 p.c. of the production costs of final demand for chemicals in 2000 (and much more than that for some sub-branches), compared with an average of 4.3 p.c. for the whole of industry excluding refined petroleum products.

2. Guiding the changes to the economy

The processes of deindustrialisation and globalisation requires the constant adjustment of economic structures. Although industry is most exposed, this extends now also to the service branches. More generally, the role and functioning of all economic agents – companies, households and government – are likely to be challenged.

Rather than passively submitting to these changes, which are the result of increasingly intense competition, these agents must take the necessary adjustments in hand in a well-considered and organised way so that they are able to limit the negative effects and derive maximum benefit. By doing so, they will ensure that economic prosperity is preserved and developed, while still being able to organise society according to their shared aspirations. More specifically, in future the government and other economic agents must act to:

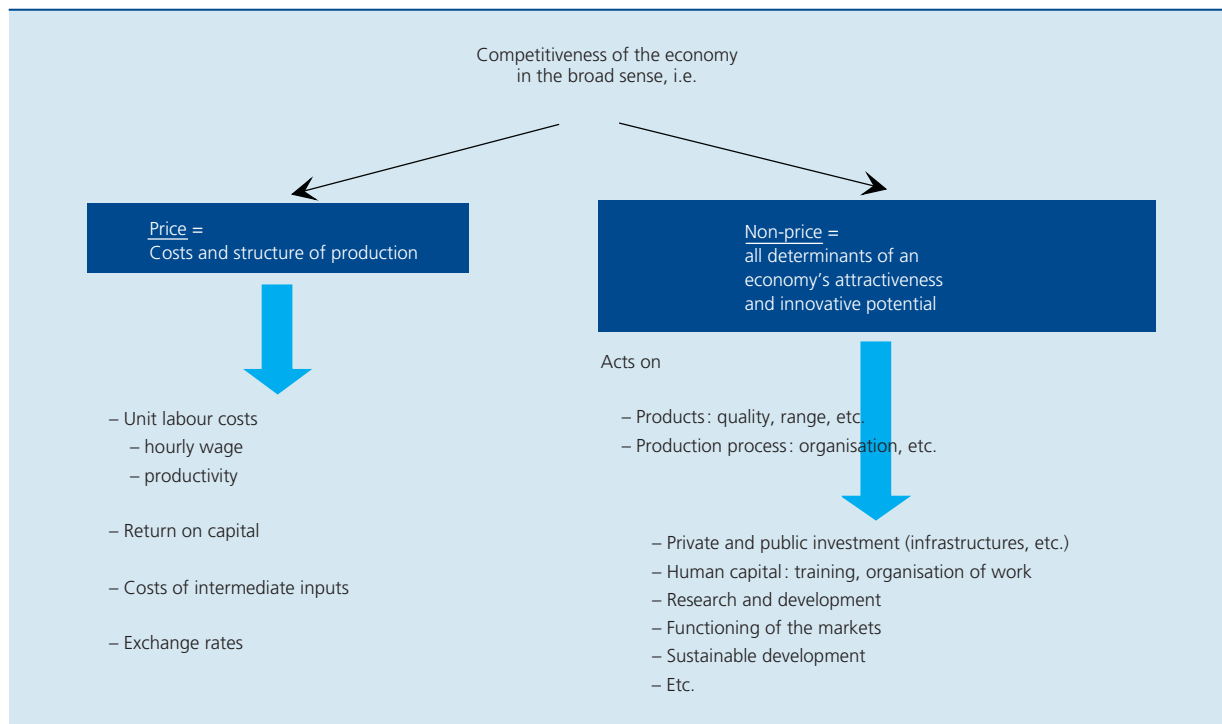
- maintain a similar production environment to that of economies of a comparable developmental level (level playing field), so as not to compound the situation with comparative handicaps in terms of production costs, tax, social and environmental regulations, infrastructures and networks;
- promote adaptability, insofar as underlying changes are inexorable. If this is to be achieved without compromising the efficiency of the goods and services markets, action is needed with regard to production factors and how they are implemented in order to enhance the economy's potential: R&D and innovation (physical capital, new methods of production and organisation, innovative products, etc.), human capital (initial and continuing training, entrepreneurial spirit, the functioning of the labour market, organisation of working hours, etc.);
- take this action while being mindful of all the social and environmental goals, aiming in particular to manage public finances soundly, maintain social welfare, take account of new needs and guarantee sustainable development.

Specifically, what is required is a concerted effort to mobilise all the available tools and policies at European, Belgian and regional level, so as to ensure the competitiveness of the economy.

2.1 Conditions for a competitive economy

While the competitiveness of an industry branch is seen as its capacity to defend or gain market shares, the competitiveness of the economy as a whole lies in the ability to ensure the development of overall productivity and, by

CHART 13 PRICE AND NON-PRICE COMPETITIVENESS



extension, of future income; according to the definition used in the EC's competitiveness reports, its aim is to ensure a sustained rise in a nation's standard of living and as low as possible a level of involuntary unemployment.

In fact, what we must do is look beyond the traditional notion of competitiveness as the ability to produce and offer goods and services on the market at a competitive price, and take a broader view. Price competitiveness, which is bound up with production costs, could then be the way for the Belgian economy to retain a role in an increasingly international production system within which it is mainly in direct competition or partnership with its neighbouring countries. Price competitiveness is determined by per capita labour costs and labour productivity, which together dictate the unit labour costs of production, and return on capital, on top of which there are the costs of intermediate inputs and the impact of exchange rates. Meanwhile, the other, more intangible factors – which can be called qualitative or non-price competitiveness – together determine the attractiveness of an economy and its innovative and adaptive potential, through the quality and variety of products available and the organisation of production processes. Put simply, price competitiveness is playing a more defensive role, preserving the attainments, whereas non-price factors have more to do with an offensive strategy motivated by the need to adapt to a global and fast-changing environment. These factors include the volume and quality of capital

stock, including infrastructures, the volume and training of human capital, the organisation of labour, R&D efforts, the appropriate functioning of the product and factor markets. Ultimately, of course, non-price competitiveness has a bearing on price competitiveness, by augmenting the productivity of labour or lowering the cost of transport or capital. It seems to have become indispensable, especially insofar as it relates to knowledge – the foundation of the Lisbon strategy. In fact, in the globalised environment in which we now live, knowledge has become “the rare factor of the production function, as capital and technology are completely mobile” (Delanghe et al., 2004).

In section 2.2, the main conditions of innovation and adaptive capacity will be reviewed. First, the two aspects of competitiveness will be looked at in general terms, by highlighting Belgium's position and that of industry in particular.

2.1.1 Price competitiveness: constituents of production cost

Belgian industry is characterised by high labour costs, although in recent times the cost trend has been neutral, if not to say slightly favourable. An international comparison of wage levels requires a certain restraint towards statistical information as regards the degree of harmonisation of data and because of the influence of the sectoral structure and the composition of employment in each country. Clearly, however, Belgian industry's hourly

labour costs are among the highest in the EU-15, due mainly to additional charges⁽¹⁾. These account for 91 p.c. of gross direct compensation, one of the three highest rates of the EU-15 along with Italy and France. The Scandinavian countries' labour costs are close to or higher than Belgium's, albeit because they have higher gross compensation. As for the four main NMS, their labour costs are significantly lower – almost 30 p.c. lower than Portugal's, the EU-15 country with the lowest labour costs.

Regardless of the high level of wages, their development in Belgian industry has been fairly restrained over the last five to seven years. Between 1997 and 2002, the average annual growth of 3 p.c. in industrial wages was less pronounced in Belgium than in the majority of the EU-15 countries, and France and the Netherlands in particular where industrial wages grew by 0.6 and 1.3 percentage point faster each year. It was, however, somewhat higher than in Austria and Germany, by 0.4 and 0.6 percentage point respectively. That said, productivity gains more than offset the rise in wages such that, between 1997 and 2004, unit labour costs rose by just 0.1 p.c. a year, way below the pace in the Netherlands (1.8 p.c.) but faster than in Germany, where they contracted by 0.3 p.c. a year, and in several countries, France and

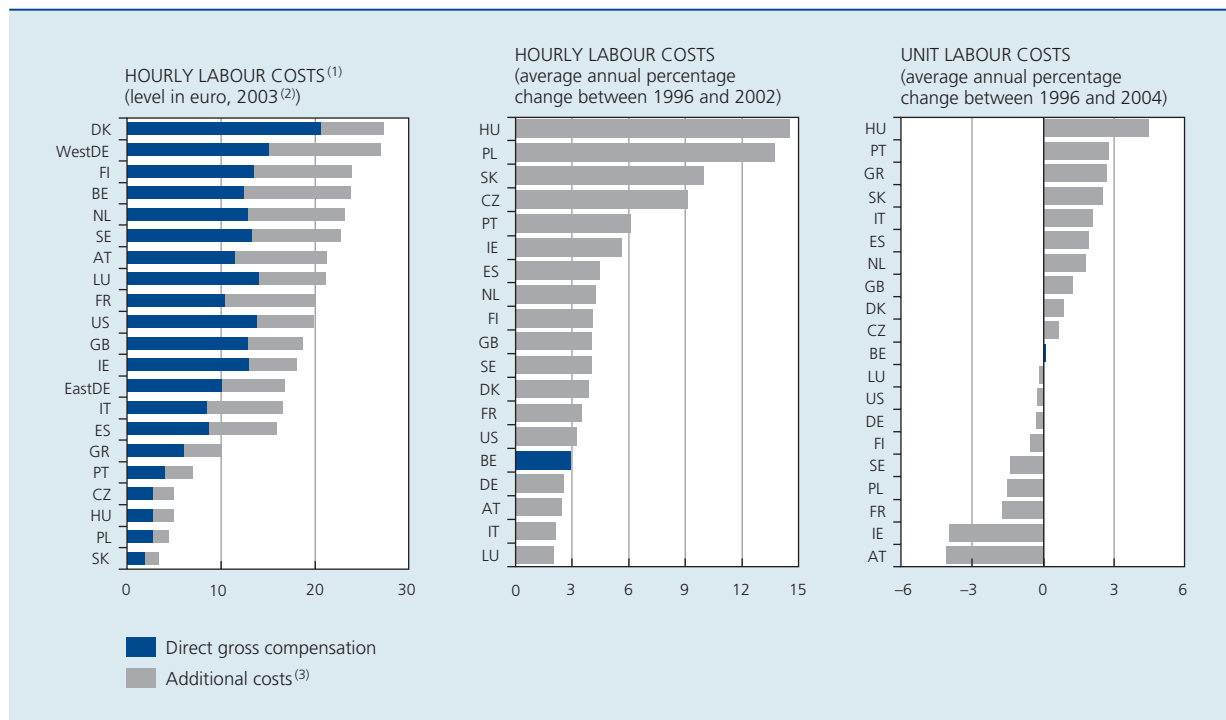
Austria included, where they substantially fell. Moreover, in the four largest NMS, the development of unit labour costs has been patchy, under the combined influence of substantial rises in hourly labour costs and productivity⁽²⁾. While unit production costs in industry would have shrunk in Poland and moderately risen in the Czech Republic, they would have increased markedly in Slovakia and, at 4.5 p.c. per annum, even more so in Hungary. All of which serves as a reminder that the convergence process upon which these economies have embarked is helping to gradually bring their wage and productivity levels into line with those of the EU-15 countries, perhaps further eroding their competitive advantage in terms of production costs.

In Belgium, since 1996, despite hourly wages having grown faster in industry than in the service branches, unit labour costs of production have risen far more slowly in industry. Yet production costs in services partly determine

(1) Social security contributions, incentive bonuses, holiday pay.

(2) These substantial changes in wages and productivity call for a circumspect view of the conclusions regarding unit labour costs, insofar as differences in measure or source in their two constituents can easily tip the balance in favour of an improvement or deterioration. Moreover, the development of the exchange rate must also be considered, which is not the case in chart 14, which is based on figures in local currency.

CHART 14 LABOUR COSTS IN INDUSTRY



Sources: EC, Institut der deutschen Wirtschaft Köln, OECD.

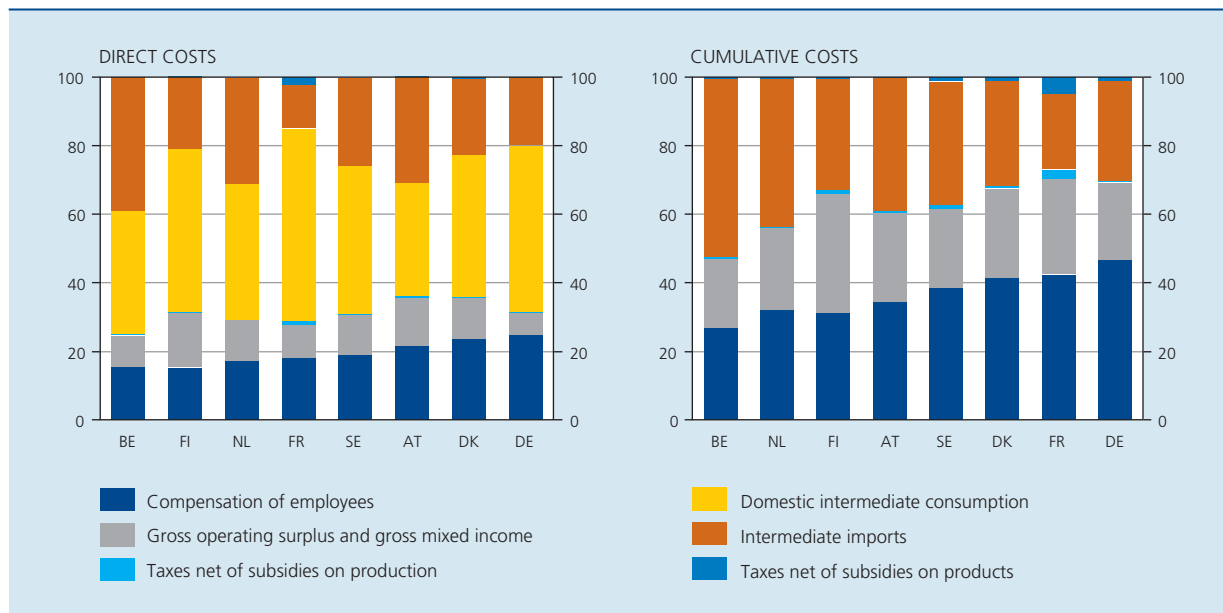
(1) Calculations based on national data, which are not always fully harmonised.

(2) Figures from 2002 for the four new Member States.

(3) Social security contributions, incentive bonuses, holiday pay.

CHART 15 STRUCTURE OF THE PRODUCTION COST IN INDUSTRY⁽¹⁾

(Percentages of total, 2000)



Sources : EC, NAI, NBB calculations.

(1) Figures based on the input-output tables. Here, industry is defined according to the concept used for the analysis of these tables. Countries are ranked in ascending order of the share of wages.

production costs in industry, insofar as the latter is an intermediate consumer of services. Generally speaking, there are still two stumbling blocks in terms of the development of labour costs: pay rises outside the framework of collective wage agreements, which propel the wage drift, must be constantly monitored and productivity gains must become much more widespread in the service branches in order to rein in unit labour costs.

Industrial companies' production costs are affected by factors other than the cost of labour, i.e. gross operating surplus and gross mixed income, which are representative of corporate profit and the income of the self-employed (which are relatively numerous in Belgium) and the costs of intermediate consumption, particularly imported, which is an especially large component in Belgium. In comparison with other European countries, it appears that in Belgium wages constitute the smallest share of the total cost of production in industry, based on either a direct comparison of labour costs with industrial output (15 p.c.) or the sum of industrial wages and wages in the other upstream branches, i.e. after incorporating the structure of domestic intermediate consumption costs (27 p.c.)⁽¹⁾.

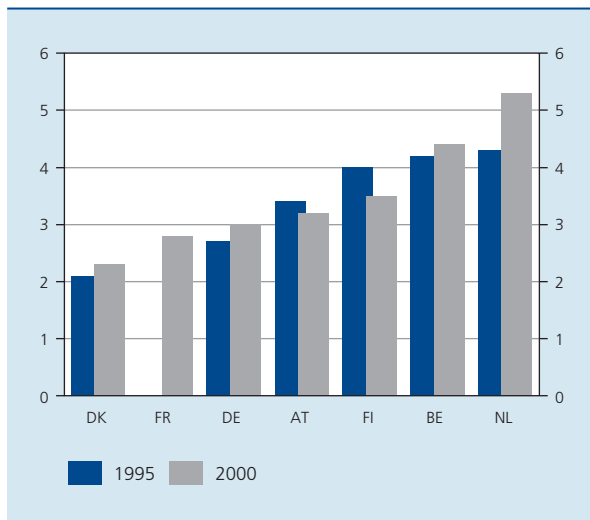
(1) Generally speaking, the switch from direct costs to cumulative costs causes non-wage compensation to rise more sharply than wages, as it involves incorporating the value added of service branches, in which the income of the self-employed makes up a bigger share.

The lower share of labour costs in the cost of production in Belgian industry means that intermediate imports seem to have much more of a decisive influence than elsewhere; yet they are a cost constituent over which Belgian companies have little control, notwithstanding the protection that is now afforded by monetary union in terms of fluctuations in exchange rates against the euro area partners. By way of comparison, in large, less open economies such as France and Germany, wages make up 42 and 47 p.c. respectively of cumulative production costs, against 27 p.c. in Belgium.

Energy is a particularly large component of intermediate production costs and is very sensitive to major price changes in the world's oil markets. Its share in the cumulative production cost of industry appears to be fairly high in Belgium: in 2000, intermediate consumption of products included in the energy branches (crude and refined petroleum products, production and distribution, etc.) accounted for 4.4 p.c. of the cost of industrial production in Belgium, compared with 3 to 3.5 p.c. for Germany, Austria and Finland and less than 3 p.c. in Denmark and France. However, it was even greater in the Netherlands, where it reached 5.3 p.c. Moreover, at almost two thirds the imported share of the energy cost was highest in the Netherlands and Belgium. In the majority of European countries, the importance of energy in the production process increased between 1995 and 2000 due to rising oil prices. Only Finnish and

CHART 16**SHARE OF ENERGY IN THE PRODUCTION COST IN INDUSTRY⁽¹⁾**

(Percentages of total, 2000)



Sources: EC, NAI, NBB calculations.

(1) Figures taken from the calculation of cumulative costs based on the input-output tables. Here, industry and energy are defined according to the concept used for the analysis of these tables.

Austrian industry managed to reduce the relative size of their energy bill over this period.

2.1.2 Other competitiveness factors and synthetic view

By its very nature, non-price competitiveness has many facets, the main ones of which will be examined in the following section. However, thanks to international rankings prepared by some institutions, the overall competitive position of the Belgian economy, or a subset of it, can be assessed synthetically. Hence, the IMD⁽¹⁾ rankings combine quantitative elements, including price competitiveness, with qualitative elements, compiled using the results of an annual opinion poll of managers of multinational companies. In 2005, Belgium was ranked 24th out of the 60 countries and regions analysed, with an index score of 67.5 (United States = 100) and tenth among the EU-15 countries. It has therefore dropped six places compared to the 2003 ranking, due mainly to the progress made by other countries. In terms of qualitative elements, Belgium was given a positive assessment for its infrastructure and international openness, and a negative assessment in terms of taxation (especially of natural persons), its institutional and legal framework as well as its labour market.

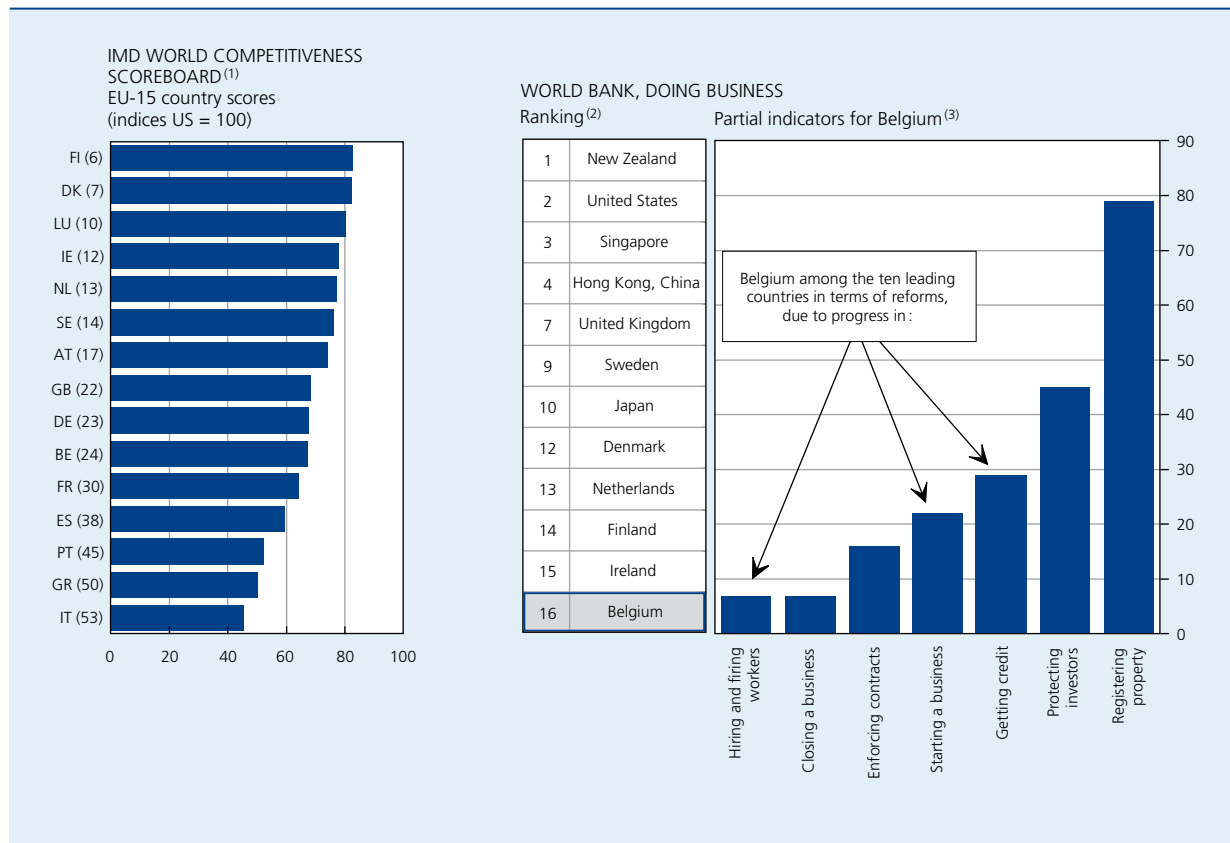
The indicator calculated by the World Bank, which is based solely on non-price elements, gives a more positive image of the regulatory environment in Belgium. Since 2003, this institution has published an annual report

entitled “Doing business” based on an in-depth study of the legal and regulatory framework, as well as the actual reality in which firms operate. In contrast to the IMD, which surveys the managers of multinational companies, the World Bank study focuses on the environment facing SMEs, which represent a vital part in the economic fabric in Belgium. In the most recent edition of the report (World Bank, 2004), Belgium is ranked 16th out of the 145 countries making up the study as well as figuring among the 10 countries to have introduced most reforms in 2003, notably in the areas of starting a business (one-stop shop), hiring and firing workers (service vouchers) and getting credit (positive central credit office). Generally speaking, the World Bank notes that the main reforms in 2003 took place within the EU, either in the NMS or in the old Member States, through the impetus given by the NMS.

The non-price competitiveness of an economy can also be generally expressed in the capacity shown by its products to be present on buoyant international markets. The structure of Belgium’s foreign trade can thus be compared with the degree of dynamism exhibited by export markets. During the period 1995-2002, it would seem that Belgium’s export structure was favourable for 44 p.c. of total exports and unfavourable for 56 p.c. This latter percentage includes regressive products – i.e. products for which the rise in foreign demand is low – in which Belgium specialises (primary plastics products, iron and steel, etc.) and progressive products in which it does not specialise (technological products such as electrical machinery and apparatus, office, automatic data processing and telecommunication equipment and apparatus, etc.). Taking account of the weighting of products in Belgium’s trade, the foreign trade structure by product impacted slightly negatively on the growth of Belgium’s export markets between 1995 and 2002, in contrast to the three neighbouring countries where this structural effect had a positive effect.

(1) Institute for Management Development.

CHART 17 SYNTHETIC INDICATORS OF COMPETITIVENESS



Sources: IMD (2005), World Bank (2004) and own calculations.

(1) The number in brackets refers to the position in the global ranking, based on 60 countries and regions analysed.

(2) EU-15 countries ranked higher than Belgium and selection of other countries. Those EU-15 countries not included in the table are ranked lower than Belgium.

(3) The chart shows, for each category, the average rankings achieved by Belgium in 2003 for all of the category indicators. In theory, the average is between 1 and 115, a lower number conveying a better ranking.

TABLE 5 EFFECT OF THE FOREIGN TRADE STRUCTURE

(Development of markets compared to trade of the EU-15, 1995-2002, indices 1995 = 100)

	Markets weighted geographically and by products	Markets weighted geographically	Effect of the structure by product ⁽¹⁾
Belgium	131.7	132.3	99.5
Netherlands	131.7	127.9	102.9
France	140.4	131.6	106.7
Germany	137.0	134.0	102.3
<i>p.m. Three main neighbouring countries⁽²⁾</i>	<i>136.8</i>	<i>131.5</i>	<i>104.1</i>
Italy	127.2	129.9	97.9

Sources: EC, NAI, NBB.

(1) Ratio between the 1st and 2nd columns. A result greater than 100 indicates that the structure by product is favourable.

(2) Weighted average by extent of trade.

2.2 Elements of the economic development potential

To a large extent, the elements determining the non-price competitiveness of the economy, namely its capacity to develop and adapt, are the same as the factors influencing its growth potential. Consequently, they can be linked either to capital stock, labour or total factor productivity, i.e. the effectiveness with which the factors are combined in the production process.

2.2.1 Capital stock

Capital stock, which is the economy's total production capacity, is constantly changing and it is essential that the rate of private and public investment is such that the capital stock can be replenished both in qualitative terms, by integrating new technologies, and quantitative terms, beyond the routine replacement of depreciated capital.

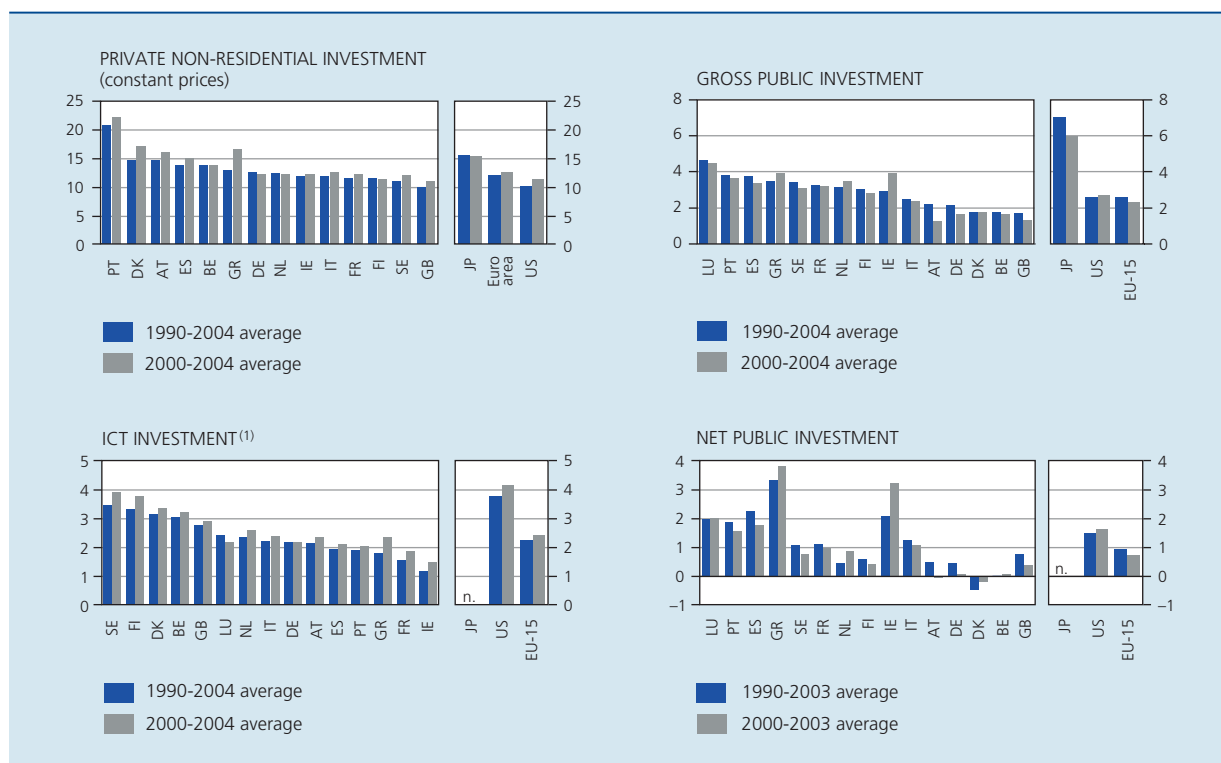
One feature of the Belgian economy is its relatively high level of private non-residential investment compared to many European countries. This can be compared with the assertion already made regarding the extent of capital intensity

and, as a result, strong apparent labour productivity. Moreover, although Belgium does not specialise in ICT production, it has one of the highest rates of ICT investment in the EU-15, due to office automation and information technology equipment. Using these technologies does admittedly help increase labour productivity as production factors, i.e. capital and labour, are combined more effectively.

In contrast to the situation in place for private investment, the Belgian economy is characterised by the weakness of public investment which is clearly below the European average, both in gross and net terms. Hence, between 1990 and 2003, net public investment was zero on average, which means that gross investment merely offset the depreciation of the existing capital. During the same period, annual net public investment amounted to 0.9 p.c. of GDP in the EU-15. With the rate of net investment remaining at zero, recent evidence, since 2000, leads to the same conclusion.

This represents a major obstacle to the future development of the economy insofar as the private sector is unable to undertake certain investments on the one hand while on the other, combined public and private

CHART 18 INVESTMENT
(Percentages of GDP)



Sources: EC, GGDC, OECD.

(1) Includes office automation and information technology equipment, communication equipment and software.

efforts may give rise to ripple effects and a virtuous circle. Insufficient public investment can therefore jeopardise the economic infrastructure, especially the transport and communication network which is one of the factors which makes our economy attractive, and which appears to be a condition for the performance of the most dynamic regions (cf. infra).

2.2.2 Human capital

The dynamism of an economy, especially where the wish is for it to be knowledge-based, also lies in the skills and potential of its labour force. Human capital proves to be a key factor for potential growth in several respects: in quantitative terms via the supply of labour, in qualitative terms via initial and continuing training, and through the effective organisation of labour.

As far as quantitative factors are concerned, the low participation rate, particularly of the oldest workers, and the continued high level of unemployment are well-known shortcomings of the Belgian labour market. They are a burden on the economy's employment rate, one of the lowest in the EU-15. In addition to the number of persons employed, the working time also influences the supply of labour. In this regard, the average number of hours worked per week in Belgian industry is noticeably less than that for the EU-15 (36.8 hours compared to 38.5 in 2003). This is largely explained by a shorter full-time working week⁽¹⁾; in fact, although recourse to part-time work is more common in Belgium than elsewhere, it takes

the form of a longer working week in Belgium⁽²⁾, in such a way that, overall, when compared with the EU-15, the weekly time spent in part-time work is only 24 minutes longer. In Belgium, as in most of the other countries, the average working time is greater in industry than in the economy as a whole as recourse to part-time working is not as great, the full-time hours worked, incidentally, being less.

The poor matching of labour supply and demand is another structural problem of the labour market in Belgium. In an attempt to remedy this, the High Employment Council recommended the implementation of the necessary conditions for greater geographical, sectoral and professional mobility among workers and improved access to both initial and continuing training.

As far as this qualitative aspect of human capital is concerned, Belgium is very well positioned in terms of initial training, with a high rate of people holding a higher secondary certificate (82.1 p.c. of young people aged 15 to 24 in 2004), close to that of the European countries performing best in this respect. Yet the rate of people holding higher education certificates in science and engineering subjects, from which the leading R&D employees are recruited, appears to be too low. In 2001, this group

(1) The measure used here, namely hours actually worked, is subject to the influence of temporary unemployment. With regard to the Belgian economy as a whole, the average working time is also less than that of the EU-15 but the difference is smaller than for industry due to the narrower gap in the average full working time (40.2 hours in Belgium compared to 40.6 in the EU-15).

(2) In 2003, Belgian industry ranked 2nd and 3rd respectively for these two criteria.

TABLE 6 VOLUME OF LABOUR

	Belgium	EU-15	Top 3 of the EU-15
Employment rate of the economy (harmonised data, 2nd quarter of 2004, in percentages of the population of working age (15-64 years), unless otherwise stated)			
Participation rate	65.3	70.3	78.2 (DK-SE-NL)
Unemployment rate ⁽¹⁾	7.4	8.4	4.6 (IE-GB-NL) ⁽²⁾
Employment rate	60.5	64.5	73.8 (DK-NL-SE)
Idem, 55-64 years	30.1	42.3	62.3 (SE-DK-GB)
Working time in industry (hours actually worked per week, unless otherwise stated; 2003)			
Full time	38.2	39.9	41.7 (GR-IT-GB)
Part time	23.5	19.8	23.7 (IT-FR-BE)
Proportion of part time ⁽³⁾	9.1	7.0	9.2 (DE-BE-SE)
Total average time	36.8	38.5	40.5 (GR-IT-LU)

Source: EC (labour force surveys).

(1) As a percentage of the labour force.

(2) Three countries in the EU-15 with the lowest unemployment rate.

(3) As a percentage of the number of jobs.

TABLE 7 INITIAL AND CONTINUING TRAINING

	Belgium	EU-15	Top 3 of the EU-15
Initial training			
Proportion of 20-24 year olds with a higher secondary certificate (percentages, 2004)	82.1	73.5	85.6 (SE-AT-IE)
Proportion of 20-29 year olds with a scientific or technical certificate (percentages, 2001)	1.01	1.19	2.05 (IE-FR-GB)
Continuing training of the population (percentages, 2003)			
Proportion of 25-64 year olds been having been in education or having undergone a training course during the four weeks prior to the survey	8.5	9.7	24.8 (SE-GB-DK)
Continuing training in industry (1999)			
Proportion of training enterprises ⁽¹⁾ , formal and informal training ⁽²⁾ (percentages)	68	56	92 (DK-IE/NL/SE)
Participation rate in formal training within training enterprises (as a percentage of the number of workers)	53	42	56 (SE-BE-FI)
Number of hours of formal training per participant	29	32	47 (GR-LU-ES)
Total cost of formal training (as a percentage of total wages)	1.5	1.9	2.9 (GB-DK/IE/SE)

Source: EC.

(1) Firms having organised at least one training course during the year preceding the survey.

(2) Formal training covers courses and work placements outside of the workplace, informal training covers all other training practices.

accounted for 1.01 p.c. of the population between the ages of 20 and 29 in Belgium compared to 1.19 p.c. in the EU-15 and over 2 p.c. in the top three European countries. One alternative would be to attract qualified personnel from abroad but at present the brain drain tends to be from Europe to the United States.

Continuing training is just as crucial as initial training, especially with regard to keeping older workers in employment. The most recent results available from the labour force survey show that, based on 2003, the continuing training effort in Belgium is slightly below the European average, whilst falling a long way short of the most dynamic countries, namely the Scandinavian countries, the United Kingdom or the Netherlands. The CVTS (Continuing Vocational Training Surveys), which are conducted less frequently⁽¹⁾ than the labour force surveys, enable an in-depth analysis to be carried out of continuing training in the branches of activity. Despite indicating a considerable increase in the training practices within Belgian industry between 1993 and 1999, such practices appear to be unequally distributed among firms. The participation rate is thus relatively high among firms effectively offering formal training, namely in the shape of courses or placements outside of the workplace but the overall supply of formal training is average compared to other countries and it covers quite a small number of hours. However, this must be qualified by the fact

that continuing training is also organised on an informal basis, especially within industry, consisting of an on-the-job training. These practices, which are more difficult to measure, are likely to be more common in SMEs, of which there is an abundance in Belgian industry⁽²⁾.

In Belgium, the social balance sheets indicate that formal training is more present in branches subject to rapid technological change, resulting in marked variations between branches of industry. Furthermore, in those branches where there is a lower proportion of low-skilled manual workers, it is noticeable that sectoral funds, in principle targeted at risk groups, are assigned to all workers. This might indicate a lack of general resources within firms. Finally, the formal training effort increases with the size of the firm. Hence, refined petroleum products and metallurgy figure among the three branches which, in 2002, had already reached targets in terms of budget (included in the interprofessional agreement of 1998) and participation in training, a target set by the Employment Conference of September 2003. In accordance with these targets, in 2004 the private sector as a whole should have earmarked 1.9 p.c. of personnel costs for training, and it

(1) The last dated survey is based on 1999.

(2) The study of Sels et al. (2002), based on a survey among Flemish SMEs, shows on the contrary that the SMEs which theoretically offer a large potential of on-the-job training on account of their organisation and the nature of their tasks, are also the enterprises which invest the most in formal training, especially in industry.

TABLE 8 ORGANISATION OF WORK AND WORKING ENVIRONMENT

(Percentages of the total number of jobs, 2003, unless otherwise stated)

	Belgium	EU-15 ⁽¹⁾	Top 3 of the EU-15
Temporary contracts:			
industry	5.7	8.4	13.8 (ES-PT-FI)
all firms	7.3	10.8	19.0 (ES-PT-FI)
Temporary unemployment ⁽²⁾ :			
industry	2.5	n.	n.
all firms	1.2	n.	n.
Unsocial hours (all firms), people who normally work:			
evenings	13.5	17.6	26.9 (GB-GR-FI)
nights	4.2	7.3	10.1 (GB-FI-AT)
Shift work (all firms)	9.6	15.8	22.7 (FI-SE-IT)
Work accidents ⁽³⁾ in industry (2000)	4	4	7 (ES-PT-NL)
Workers who are victims of intimidation (economy as a whole, 2000)	11	9	14.3 (FI-NL-GB)

Sources: EC (labour force surveys), NAI, NEMO.

(1) Weighted average for temporary contracts; non-weighted average, for 11 and 13 countries respectively, for unsocial hours and shift work.

(2) Number of people receiving temporary unemployment benefit as a percentage of the number of salaried employees.

(3) Having resulted in at least four days' absence.

ought to attain a participation rate of 50 p.c. by 2010. Insofar as these are overall targets, a parallel can be drawn in this respect with the target of 3 p.c. of GDP for R&D spending (cf. *infra*). While this latter factor does not guarantee the spread of knowledge and innovation, training targets, even if adhered to by the private sector as a whole, do not ensure that training efforts will be allocated in a harmonised manner. One considers, in particular, the many SMEs operating in our economy, whose size appears to represent an obstacle in gaining access to formal training.

Irrespective of the volume of work and the labour skills deployed, the potential of human capital also depends on work being organised in an effective manner. Beyond the high level of apparent labour productivity in Belgian industry, this organisation can be looked at with the aid of some partial indicators.

Generally speaking, in all of the EU-15 countries, temporary work is less common in industry than in firms as a whole and this difference is even greater in Belgium: 5.7 p.c. of industrial jobs in Belgium are temporary contract positions compared to an average of 8.4 p.c. in the EU-15 and 7.3 p.c. in firms as a whole in Belgium (10.8 p.c. in the EU-15). Here, a lesser importance of seasonal work is in evidence, as is the need for industry to have staff trained in the specific production techniques of each

branch. This preference for a stable workforce is underlined by the temporary unemployment figures – only available for Belgium – inasmuch as industry is affected by the latter to a greater extent than the broad mass of branches⁽¹⁾. It would therefore appear that industrial firms prefer to use this practice rather than parting with trained staff or resorting to temporary labour. Within the industrial sector, temporary unemployment affects the diamond and clothing branches in particular, which reveals a certain degree of vulnerability to economic conditions.

In terms of unsocial hours, so-called in line with the terminology of the EC's labour force surveys, it is evening or night work, as opposed to weekend work, which appears to affect industry in Belgium more than it does the other branches. At European level, where only figures for firms as a whole are available, it is noticeable that unsocial hours, whatever form they take, are less common in Belgian firms than their counterparts in most of the other EU-15 countries. The same is true of shift or teamwork: in Belgium, this is more common in industry than in firms as a whole, in the same way as variable working time or flexitime are less common. However, shift work in firms as a whole is less common in Belgium than in most other countries of the EU-15.

(1) However, much less than the construction sector.

A safe and untroubled working environment also helps to ensure that the production process runs smoothly, especially in industry where the risks involved may be greater. In this respect, and as far as one can judge, Belgian industry generally ranks at the European average in terms of work-related accidents or risks perceived by workers. Both in Belgium and in the EU-15, the construction, agriculture and transport branches appear to be more at risk. However, the dispersion within industry is considerable. Yet some branches where there are significant objective risks, such as the refined petroleum products branch, the nuclear industry and chemicals, are less dangerous, whether it be in terms of hard and fast statistics or according to workers' perception. This is obviously a result of the security measures taken.

Pressure in the workplace certainly exists since, in the EU-15, 36 p.c. of those employed in industry are permanently or almost always subject to strict deadline constraints, as against 29 p.c. for branches as a whole. Finally, although complaints of harassment are less common in the area of industry (6 p.c. of workers in 2000 compared to an average of 9 p.c. in the economy as a whole) in the EU-15, they are, as far as the economy as a whole is concerned, more widespread in Belgium than in the EU-15. This does not necessarily mean that harassment is more prevalent, but perhaps that there is a greater awareness of the phenomenon, resulting in a greater number of complaints.

2.2.3 Research and development

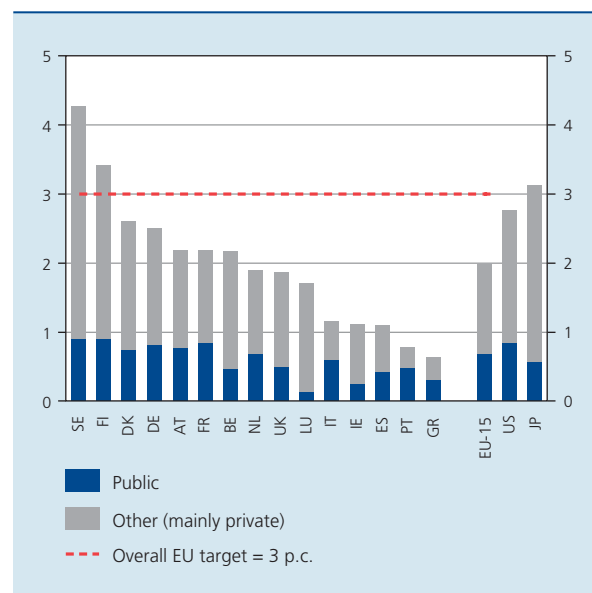
Research and development (R&D) plays a crucial role in maintaining and increasing competitiveness, allowing new products and production processes which are more efficient, less costly and more respectful of societal constraints to be developed. In so doing, it ensures that the economy is dynamic and attractive by adopting a long-term approach. It gives rise to the development of new machines and technologies which perform better than those of the previous generation. Investing in these is important so as to maintain the competitiveness of the economy.

From implementing R&D to a concrete product or process application involves a large number of stages, for which a harmonised and consistent policy is required. Since the Lisbon and Barcelona European Councils in 2000 and 2002 respectively, R&D and innovation have been at the heart of the strategy aimed at making the EU the most competitive, knowledge-based economy.

However, Europe is not only struggling to catch up with the United States in this area but actually fell further behind in the second half of the 1990s. The overall shortage of funds earmarked for R&D stems

from a lesser involvement of the private sector, plus a lack of researchers and inadequate exploitation of results. Against this background, Belgium stands midfield among European countries, although it does exhibit some special features. The data currently show that total R&D expenditure (for which the European target is 3 p.c. of GDP by 2010) amounted to 2.2 p.c. in 2001, above the European average of 2 p.c., yet way short of the best performers, Sweden and Finland (4.3 and 3.4 p.c. of GDP respectively), as well as the United States (2.8 p.c.) and Germany (2.5 p.c.). Belgium has been catching up, however, this ratio recording a sharp increase in recent times: between 1998 and 2001, R&D expenditure expressed as a percentage of GDP grew at an average rate of 4.5 p.c., one of the highest in the EU-15. Even over a longer period (1993-2001), Belgian growth was considerably greater than that of the EU-15. Nevertheless, the target of 3 p.c. remains a long way off, whereas it has already been exceeded in the most advanced countries, namely Sweden and Finland. According to the FPB (Biatour et al., 2005), starting from the level of 2001, the annual growth rate in R&D expenditure required to meet the 2010 target is slightly greater than that recorded over the period between 1993 and 2001 (7.2 p.c.) but less than the rate (8 p.c.) recorded since 1995. Taking past performance

CHART 19 R&D EXPENDITURE BY SOURCE OF FUNDS
(Percentages of GDP, 2003⁽¹⁾)

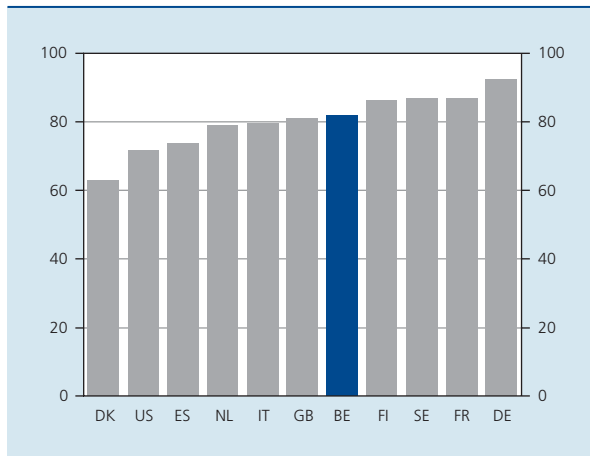


Source: EC.

(1) 2002 for Italy, Japan and the United Kingdom, 2001 for Belgium⁽¹⁾, Greece, the Netherlands and Sweden and 2000 for Luxembourg.

(1) According to unofficial figures from the Federal Science Policy Service, R&D expenditure is reported to have fallen in 2002 and 2003.

CHART 20 ROLE OF INDUSTRY IN R&D
(Percentages of industry in business R&D expenditure, 1997-2001 average⁽¹⁾)



Source: OECD.
(1) 1997-1999 average for Denmark and 1997-2000 average for the United States, France and the Netherlands.

as a basis, the same study also estimates that the onus for achieving this target looks set to fall on the Flemish and Walloon regions, which will have to make up for the stagnation seen in Brussels.

In fact, based on the expenditure accounted for by firms, which amounted to almost three quarters of the total in 2001⁽¹⁾, the increase in R&D intensity between 1995 and 2001 was more marked in Flanders than in Wallonia, while no increase was recorded in Brussels. In relation to regional value added, the R&D expenditure of firms in 2001 totalled 2.2 p.c. in Flanders, 1.7 p.c. in Wallonia – a ratio close to the national average of 1.8 p.c. – and 0.7 p.c. in Brussels.

Under the terms of the Barcelona European Council, two thirds of R&D funding should come from the private sector. This is already more or less the case in Belgium, especially if foreign funding, the majority of which is private, is taken into account. However, a major effort is still required from the private sector if it is to achieve its implicit target of 2 p.c. Furthermore, whereas the EU is suffering generally from a shortage of private funding compared to the United States, in Belgium there is a lack of both execution and funding at government level; in 2001, the State's share in funding was the second lowest in the EU-15. The public funding of R&D expenditure is also influenced by the institutional development of Belgium where the regions are gradually supplanting

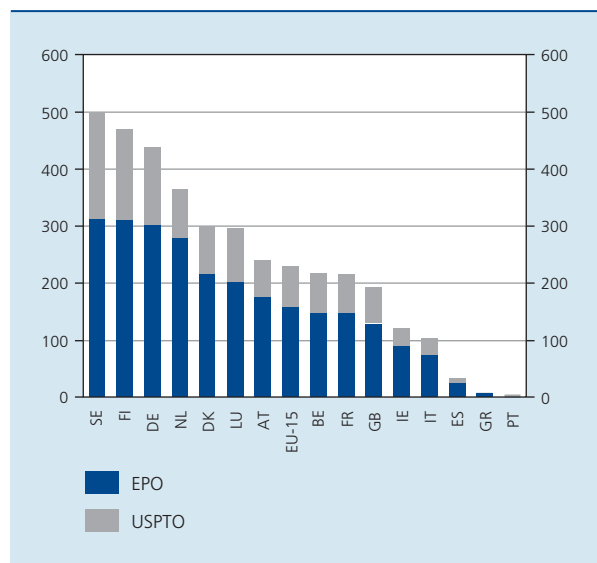
(1) To which must be added expenditure in other sectors, in particular higher education.

federal government. On the other hand, Belgian R&D benefits from a high level of foreign involvement which, in relation to GDP, ensures one of the highest contributions in the EU-15.

The nature of its activity means that industry is the main pillar for R&D. This applies even more so in Belgium because of the relative weakness of public involvement. Nevertheless, compared to other countries, the intensity of the R&D effort can appear insufficient: in relation to industrial value added, it amounted on average to 6.5 p.c. between 1997 and 2001, a level above that of the Netherlands, Denmark and the United Kingdom, yet below that of France and Germany. This overall view is misleading, however, since an analysis by industrial branch reveals that, in all of the branches except transport, the R&D effort is greater than in these last two countries. The difference observed at aggregate level can therefore be explained in terms of the transport equipment branch alone. In fact, this branch tends to be very active in R&D in the major countries, due clearly to its aeronautical, rail and automotive design activities, whereas Belgium is more oriented towards assembly.

Among industrial branches, the predominance of chemicals, and more particularly pharmaceuticals, is once more felt. During the last ten years, R&D expenditure by the pharmaceutical industry has grown twice as quickly as expenditure by firms on the whole, bringing its share of

CHART 21 SCIENTIFIC PATENTS
(Number of patents⁽¹⁾ per million inhabitants, 2002)



Source: EC.
(1) Patent applications to the European Patent Office (EPO) and patents granted by the US Patent and Trademark Office (USPTO).

the total above 20 p.c. in 2001. This focus on one sector (which, furthermore, is highly dependent on foreign countries owing to the number of multinationals operating in Belgium) may in future prove to be a danger. In particular, it will be instrumental in meeting the Barcelona target. However, the branch with the most intensive R&D effort in relation to its value added is electrical and optical equipment: in 2001, this amounted to 24.7 p.c. compared to 17.8 p.c. for chemicals and 7.7 p.c. for industry as a whole.

R&D expenditure alone is not enough; what matters is that it can be translated into results and concrete applications, assessable in several stages. At the scientific level, the number of publications in Belgium is slightly above the European average. However, despite increasing rapidly in recent times, there is a shortage of patent applications in our economy. On the other hand, the Belgian economy is well positioned in terms of innovation, especially in industry. According to the EC innovation survey, half of the companies with 10 or more employees are reported to have innovated a product and/or process during the period 1998-2000. This performance is second only to Germany. Even though the high level of scientific research appears to be struggling to produce patented applications, innovation is nevertheless present.

In the final report to its work, "Belgium's High Level Group 3 %" (2005), set up in 2004 by the federal minister responsible for scientific policy, strongly qualified the usefulness of the 3 p.c. target for a small, open economy such as Belgium, R&D having "become a movable production factor over time". It also called into question the distribution target between the private and public sectors, modelled too much on the American situation, assessing that, in reality, the lion's share of efforts should be the responsibility of the private sector while also underlining the insufficient amount of public research. According to the High Level Group, the main problems of R&D in Belgium go beyond the figure of overall expenditure. As far as the deployed resources are concerned, besides the shortage of public funds already highlighted, the concentration of private expenditure in the hands of a limited number of multinational companies means that they are susceptible to one-off events, such as one company's decision to relocate. Moreover, although there is a highly-skilled workforce to support R&D in Belgium, the cost of such a workforce is too high and a career as a researcher is not attractive enough. In terms of opportunities, research results are not translated into innovations in a sufficient enough manner and the dissemination of these results is inadequate owing to a framework which is generally too rigid. The gap between the high-tech focus of R&D and the specialisation of Belgian industry in the

low and medium-tech segments is particularly illuminating in this respect. Finally, as regards innovation policies, the High Level Group highlights the risk of dual fragmentation: between different policies (a risk which also exists in other countries) but also in institutional terms where regional initiatives lack a common vision monitored at federal level.

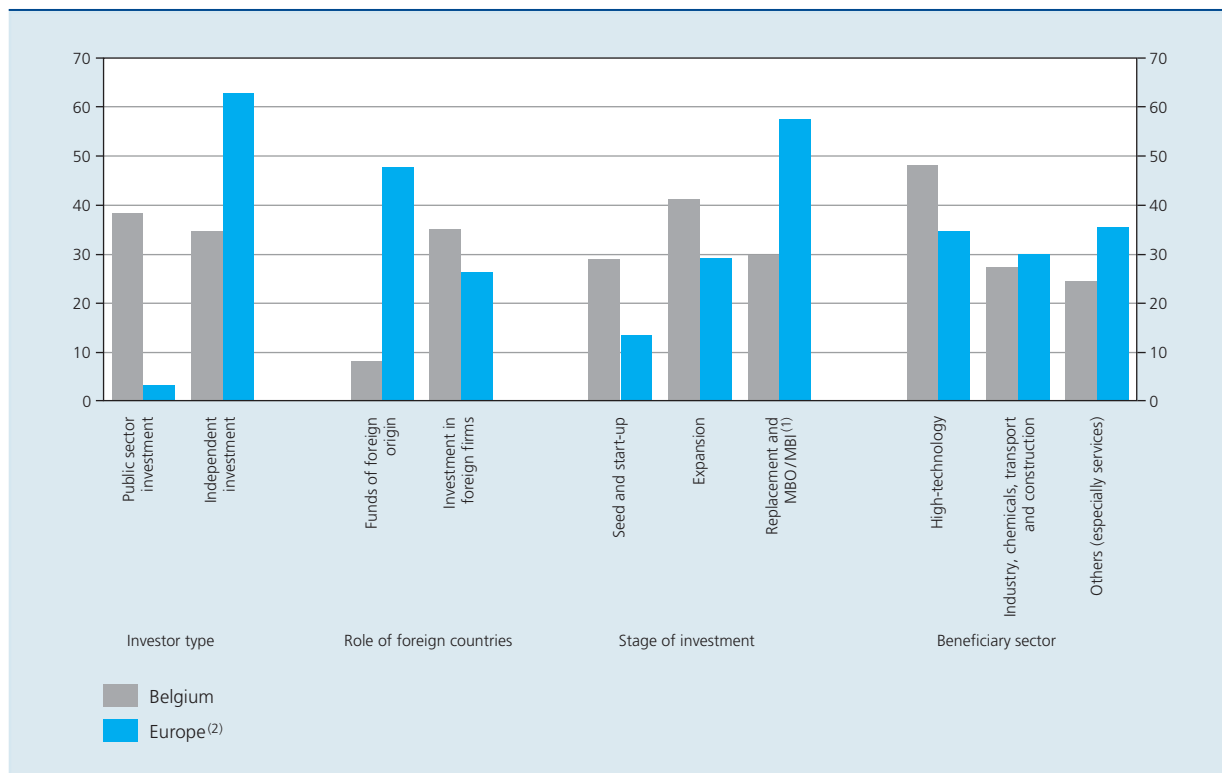
2.2.4 Financing of firms

In addition to the real factors mentioned above, the performance of both our industrial and non-industrial firms also implies that a certain number of financial conditions are fulfilled. Indeed, it is essential that their financial soundness is ensured and that they generate a sufficient amount of own resources, while at the same time having access to external funding which is varied and tailored to their situation. In this respect, there are a number of distinctive characteristics to Belgium's industrial fabric, and Europe's too, which should be taken into account. The recent past shows that Belgian firms are generally in good financial health and that their debt levels are reasonable. In 2001, equity accounted for roughly 40 % of the liabilities side of the balance sheet of Belgian industrial companies, thus placing Belgium midfield in relation to the other EU-15 countries. As is the case in the euro area as a whole, the financial accounts indicate that shares, the overwhelming majority of which are unlisted, provide the basis for a good 50 % of funding. An increasing proportion of shares are now held abroad. Moreover, the financing conditions do not appear to be unfavourable either and are not liable to slow down the development of companies activity. In the recent past the relative level of lending conditions to SMEs has tended to increase. However, this was very likely the result of a catching-up exercise whereby Belgian banks moved into line with the prevailing conditions in other EU countries, a fact which is underlined by the ECB's harmonised rate survey.

In the context of increasingly close integration of European financial markets, a policy ensuring that Belgian firms and, in particular, the numerous SMEs and fledgling companies are adequately funded, must support the aim of an innovative and buoyant economy. There are few multinationals in the Belgian economy with access to the international financial markets. However, it is home to many foreign companies (with loans between affiliated companies representing a major form of funding) and its SMEs draw a large part of their funds from unlisted shares, while at the same time remaining dependent on loans from local banks.

CHART 22 VENTURE CAPITAL IN BELGIUM

(Percentages of the total, average funds invested 1999-2003)



Source : European Venture Capital Association.
(1) Management buy-out/management buy-in.
(2) EU-15 + CZ, HU, PL, SK + CH, IS and NO.

SMEs in particular should be in a position to access a whole range of funding methods; the necessary conditions to do this include the preservation of access to bank loans, the development of the venture capital market and the emergence of financial markets designed for smaller companies and with the task of providing a link from venture capital once a company has reached a certain stage of development. In this respect, the Belgian venture capital market exhibits several distinctive, potentially weakening, features in a European context. Firstly, even though it compares quite favourably with the European average, it remains modest in size, both in terms of funds collected or invested. Secondly, it is largely dependent on public funding, due, among other things, to the lesser importance of institutional investors who are subject to more rigorous investment constraints. Finally, while it focuses heavily, and indeed more so than elsewhere, on high technology, it has in the past concentrated on the initial stages of company development. This in itself is a positive factor yet it increases the risk of a subsequent vacuum. An orderly and targeted raising of the restrictions on institutional investors could help in meeting this

requirement, as could the putting in place of an organised market, a role which could be filled by the newly-created Euronext Brussels free market.

2.2.5 Environmental policy

Several international agreements aimed at reducing pollutant emissions reflect the growing awareness over the past few years of the need to contain the environmental cost of economic activity. The requirement for sustainable development, which also forms an integral part of the Lisbon strategy, has significant implications for the production methods of companies, especially those in the industrial sector. At first sight, it may therefore be seen as restricting and a source of additional costs. However, apart from representing the corporate world's fair contribution in response to the needs of society, it may also prove to be an opportunity. Insofar as this growing awareness tends to be shared at international level, an industry may find an innovative way forward in the development of more environmentally-friendly production techniques. Such techniques, which are then an innovative product

in themselves, can, if appropriate, be marketed abroad or used to improve or manufacture existing industrial products more efficiently, thereby providing innovative companies in this field with a new competitive edge. Moreover, the recent "Kok report" (2004) places a sustainable environment and the attainment of a leading position in eco-industry in particular, among the five policy areas requiring urgent action as part of the Lisbon process⁽¹⁾.

The environmental objectives naturally affect all economic players. Households therefore have an essential role to play in terms of waste policy, which accounts for two thirds of current environmental protection spending. Although the biggest forms of pollution are waste and water-related, the only accurate and recent figures available are for air pollution.

It is this last form of pollution which is of primary concern to industry. Its share in the total of the five types of pollutant emissions recorded⁽²⁾, which ranges from 27 to 66 p.c. over the period from 1990 to 2001, is in fact greater than its share in value added (20 p.c.). Certain industries, such as the refined petroleum products branch, chemicals, non-metallic mineral products and basic metals, are particularly polluting. A cumulative approach, based on the input-output table, and which also takes account of pollution caused by intermediate consumption, shows that the most polluting products to manufacture are basic chemicals and iron and steel.

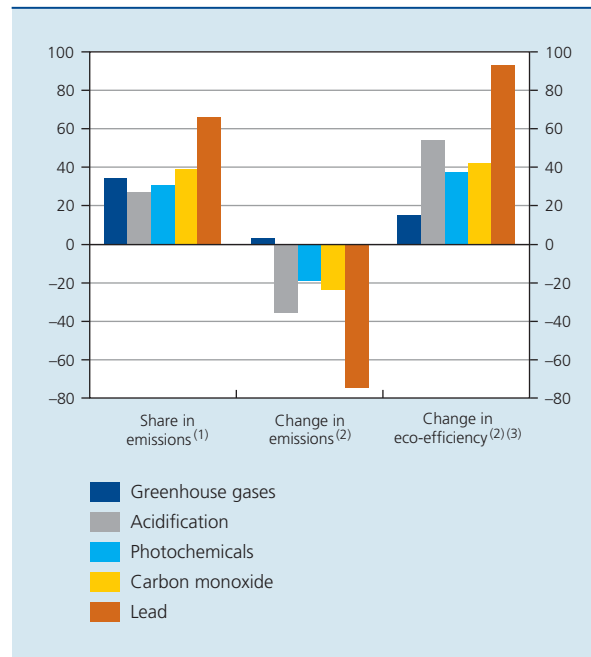
Some efforts have already been made: from 1990 to 2001, most types of emission were cut, sometimes substantially, albeit to a lesser extent in the industrial sector than for firms as a whole. Although these efforts are moving in the right direction, there is still a considerable way to go to achieve the European Gothenburg 2010 targets in terms of acidification and photochemicals. Furthermore, greenhouse gas emissions have increased since 1990 – less so in industry than for firms as a whole – distancing Belgium from its reduction target of 7.5 p.c. agreed upon in the Kyoto protocol.

Even though the targets of international agreements relate to emission volumes, the efforts made by industry may also be judged based on how its eco-efficiency changes. Eco-efficiency compares industrial activity with the pollutant emissions that this activity causes. From this

(1) One can also mention, by way of example, the automotive industry, which is the subject of an in-depth analysis in the EC's last competitiveness report (EC, 2004a). The widespread demand for less polluting vehicles should guide R&D and enable the EU to gain a comparative advantage in this respect by adopting a pioneering role, which will be essential in conquering the potentially enormous Chinese market for motor vehicles. Although R&D capacities in this area barely affect Belgium, it will be able to turn it to its advantage through its role as an assembler.

(2) Greenhouse gases, acidification, photochemicals, carbon monoxide, lead.

CHART 23 INDUSTRIAL AIR POLLUTION
(Percentages, 1990-2001)



Source: FPB.

(1) 1990-2001 average.

(2) Change between 1990 and 2001.

(3) Defined as output per unit of pollutant emissions.

viewpoint, the development is favourable: between 1990 and 2001, eco-efficiency for firms as a whole improved, from 17 to 107 p.c. depending on the type of pollution, including for greenhouse gases. This indicates that pollutant emissions have risen less sharply than activity, and have fallen in some cases. Eco-efficiency gains proved to be lower in industry. However, the performance of the most polluting industrial branches has been patchy, from excellent for chemicals, neutral to positive for basic metals and negative overall for refined petroleum products and non-metallic mineral products. In the refined petroleum products branch especially, although emissions have fallen, the reduction in activity has been even greater, resulting in an important loss of eco-efficiency.

The environmental spending of the economy as a whole is on the rise. The enterprises, for their part, have financed 59 p.c. of the national expenditure on environmental protection in 2002, against 53 p.c. in 1997. This growth only affected current expenditure whereas the share of environmental investments in their total investment remained stable. As for the most polluting branches, the share of environmental investments in overall investments is much greater than the average (between 4.4 and 6.1 p.c. compared with 1.8 p.c. for firms as a whole).

2.3 Industrial and innovation policies

Faced with rapid changes in the global economy, and the implications of such changes for industry and other sectors of activity in Belgium, there are a whole range of factors that can enhance the economy's adaptability, its competitiveness and its prosperity. In this context, government and the social partners are called upon to employ a wide array of instruments, while reconciling the action they take with all of the societal objectives. In particular, what is generally referred to as industrial policy must henceforth be regarded in terms of an integrated and consistent approach, encompassing for example, the formation of revenue, education, research and innovation, the orientation of public expenditure or the environment.

2.3.1 Concepts and development of industrial policy

In its traditional sense, industrial policy can be defined as using a series of instruments to support and promote corporate activity, indeed to steer the sectoral specialisation of the economy. Over time, the focus of industrial policy has changed and its sphere of activity has widened, both in Belgium and in the other countries of the EU, these developments being guided, to a considerable extent, by European bodies.

Protecting sectors in difficulty or furthering the development of sectors considered as promising was the aim of the sectoral policies of the 1970s and 1980s. However, because of the negative judgement passed on these policies, from 1990, a horizontal policy, centred around the framework of economic activity, R&D and adaptation to structural changes, was implemented at European level in order to put in place the necessary conditions in terms of EU competitiveness. Since the Lisbon summit in 2000, the importance of such factors as innovation, acquisition and dissemination of knowledge, including informal knowledge and knowledge integrated into human capital, as conditions for maintaining and increasing competitiveness, has been emphasised. This includes increasing research efforts, as part of a national or regional innovation system within which synergies are created between all of the players involved in the acquisition of knowledge and in the development and implementation of innovations, namely firms, workers and government. At present, priority continues to be given to the horizontal approach, in spite of a certain turnaround in 2002 as a result of which some Member States provided a reminder of the need to take account of specific branch features when defining policies.

(1) Cf. EC (2003b) for example.

In this framework, industrial policy must be seen in the broad sense, as the result of the interaction between different types of policy each with its own aim, involving a broad range of instruments. The shaping of the innovation policy is itself constantly being adapted. From now on, the focal point of this must be the setting-up of innovation systems where interaction creates, spreads and deploys new knowledge, therefore going beyond a linear process according to which R&D conducted in isolation leads to the development of innovative products and a competitive economy. It is beginning to emerge that innovation is not restricted to the fields of scientific or technological research, but that it can be placed at the core of all of the policies, including in environmental and social areas.

2.3.2 Lessons to be learnt from the experience of innovative economies

In the absence of a universally acknowledged miracle cure, analysing the experiences of what are deemed to be the most dynamic European economies can provide a wealth of lessons as part of a benchmarking process, even if it is unlikely that they can be transferred exactly as they are.

Among the countries of the EU, Finland is the most commonly-cited example of an innovative and buoyant economy, supported in particular by its telecommunications sector. However, one cannot speak of offensive sectoral policy insofar as, following a major economic crisis at the start of the 1990s, the Finnish economy aimed above all to implement a framework conducive to economic restructuring. This policy showed a clear willingness to attach vital importance to R&D and innovation, as well as to education, and was implemented by setting-up a national innovation system, providing a structured framework consistent with the innovation policy and possessing the following main features: establishing contact links between a large number of players, cooperation between the academic, research and entrepreneurial circles, the participation of SMEs, public bodies which centralise responsibility for defining, funding and continued assessing both applied and pure research programmes. This framework helped create a national consensus, with all of the players agreeing on the objectives to be pursued.

In addition to this national example, there are a number of European regions which are also particularly dynamic. Several studies have attempted to identify the best performers among the regions – i.e. those undergoing rapid development (disregarding any catch-up effect) compared to the average growth of the EU – and to isolate the causes of their success⁽¹⁾.

TABLE 9 SELECT INDICATORS FOR SOME OF THE BEST PERFORMERS AMONG EUROPEAN ECONOMIES

	Per capita GDP (purchasing power parities, 2002, indices EU-15 = 100)	Annual GDP growth (1999-2002, current prices)	R&D expenditure (percentages of GDP, 2001)	High-technology patents (per million employed persons, 2002)	Employment in industry (percentages of total, 2003)	of which high-technology
Oberbayern	144.4	3.8	4.65	456	22.9	2.3
Darmstadt	140.2	2.6	2.99	90	21.8	2.2
Baden-Württemberg	114.1	3.0	3.89	142	32.3	3.5
<i>p.m. Germany</i>	99.4	2.1	2.51	95	23.0	1.9
Île-de-France	160.9	4.0	3.36	157	11.2	1.5
<i>p.m. France</i>	103.3	4.1	2.23	72	17.0	1.2
Niederösterreich	89.0	3.1	0.66 ⁽¹⁾	44	19.8	1.6
<i>p.m. Austria</i>	110.4	3.4	2.07	49	19.3	1.7
Finland	104.0	5.3	3.41	232	18.9	1.8
<i>p.m. Belgium</i>	106.7	3.5	2.17	66	17.8	0.7

Source: EC.

The regions of Darmstadt, Oberbayern, Niederösterreich and Île-de-France were highlighted by an EC study (EC, 2003b) as having shown recent exceptional growth, account being taken of their initial level of development.

(1) 1998.

The regions highlighted in this type of study each display specific characteristics, such as with regard to the type of production (mainly high-tech industry in Oberbayern, the preservation of a more traditional industrial presence in Baden-Württemberg, services in Île-de-France and London) or the importance of R&D activities (underdeveloped in Niederösterreich, the region around Vienna, unlike in Oberbayern). Nevertheless, certain common features are also evident:

- these regions include a major city, at the centre of a sophisticated communication and transport network;
- they promote entrepreneurial spirit and collaboration between universities and firms;
- they can generally boast of the presence of high-technology clusters;
- spillover effects have arisen, made possible by existing networks and the sharing of a common vision by all of the partners involved.

It also seems that the public authority has always played an active role, not just through putting framework conditions (transport, communication, low cost energy supply) in place, but also in assisting regional development and facilitating contact between different players so as to improve the synergies between them as part of an integrated approach. To this end, governments have often set up and piloted centres aimed at bringing together players from different backgrounds so as to ensure coordination of the regional strategy. The State's role as the (primary) user of innovations must not be forgotten either; neither is this role limited to traditional domains such as

the defence industry, which, in France, has contributed to the dynamism of the Île-de-France region, where it is concentrated.

Any industrial and innovation policy needs to be constantly rethought and adapted. This is why the Finnish government is now considering how to prevent its economy from resting on its laurels and to prepare it to face up to the challenges in store. Included among its objectives to remedy present shortcomings are the need to diversify an economy which is too specialised, the switch from a policy deemed too technological and scientific to one which is centred more on innovation (marketing, etc.), especially in the social sphere (healthcare, welfare), measures to galvanise the entrepreneurial spirit, considered particularly low at the time being, and measures to make Finland more attractive to foreign investment and labour.

2.3.3 Main features of the industrial and innovation policy in Belgium

Although essentially the responsibility of the regions, industrial policy in Belgium is still largely based on a common vision, due to the past, the responsibilities assumed by the federal State and the European framework. In this respect, industrial policy in Belgium has generally evolved in a similar fashion to the rest of the EU, and its three main neighbouring countries in particular.

First of all, it seems to be an acknowledged fact that resorting to defensive-type sectoral policies must remain an exception and must be governed by strict rules. Therefore, providing provisional assistance to an activity in decline in an attempt to facilitate conversion to a new activity, whilst complying with community regulations, especially relating to competitiveness (state aid, etc.), is permissible. Furthermore, horizontal policies, such as the training policy, are suitable for enabling inevitable changes to be faced since they promote labour adaptability. Over the years, defensive sectoral policies have become much less important; what remains in terms of such policies is basically the responsibility of the regions.

The appropriateness of offensive sectoral policies, the aim of which is to promote the development of a sector or a business line considered to be promising, is a more keenly debated issue. Opinions on the issue are divided, depending on who is believed to be better placed to identify the sectors of the future – the markets or the government. Such a policy remains a reality all the same, both in France on the grounds of its interventionist tradition, brought back into fashion by the Beffa report (2005) which advocates the launch of “mobilising programmes for industrial innovation” and in Germany where the volume of sectoral aid (including defensive aid) has remained relatively high. In Belgium, offensive sectoral policies continue to pervade the policies initiated in the different regions of the country. Thus, the different regional policy declarations made in summer 2004 all stated the intention to support those sectors regarded as promising.

For more than a decade, most industrial policies have however been horizontal in nature. They either aim to set up a favourable framework for economic activity (infrastructure, organisation of product and factor markets, entrepreneurial spirit, innovation, etc.) or they influence the entrepreneur’s decision-making parameters (taxation, investment aid, etc.) more directly. The reality in Belgium is that these policies are determined both by European regulations and the sharing of responsibilities among the different levels of power within a country, in such a way that each level contributes to the implementation of these policies.

The EU has an important role to play in the matter, especially in terms of driving structural policies. This goes for the Lisbon strategy, which covers innovation and knowledge, the labour market and social cohesion, as well as the environment. The EU is also playing a more active role by initiating and supervising major transnational infrastructure projects such as the trans-European network programmes (rail, electrical, broadband networks), setting standards (adopting the GSM standard for example),

entering into multilateral accords within the framework of commercial policy, and contributing to the funding of structural policies.

It is important for Belgium to play an active part in these European initiatives and, in particular, to feature in the major transnational programmes. Moreover, the overall effort of the Belgian government may be judged partly in terms of the level of public investment; however, as has already been mentioned, this is particularly low.

In terms of responsibilities, each of the entities, both federal and federate, has a role to play:

- the federal State influences the economy’s price competitiveness through its income and taxation policies. Non-price competitiveness, for its part, can contribute to achieving compliance with a competition policy by developing competition authorities, improving the way in which the financial markets work and increasing public investment in its areas of responsibility, notably air and rail transport;
- the communities have a major role to play in the development of human capital and pure research, key factors for endogenous economic growth;
- the regions have a number of responsibilities which impact on the economic framework, notably the environment, town and country planning, mobility (public works, especially roads), applied research, training, supporting local government, the use of European Structural Funds and the development of certain areas, whether rural, neglected or urban centres. They can also encourage economic activity directly through aid, especially for investment and research purposes.

The government therefore has a whole range of instruments to create an environment conducive to economic activity, but which does not necessarily require the mobilisation of considerable financial resources. Public action must be ongoing in order to best adapt regulations and the decisions resulting therefrom to a changing context and to the characteristics of the regional, national and European economy. However, the role of government must extend beyond the general framework. Hence, some of the best performers among European regions have benefited from active government support, in particular through the setting-up and piloting of meeting points between the players affected by the development of innovation poles (universities, research centres and firms). Achieving a national consensus based on a common vision of the goals and the resources to be used to get there guarantees maximum efficiency, especially in terms of the spillover effects from one innovative activity towards others or to the economy as a whole.

Of the three neighbouring countries, it is in the Netherlands that corporate policy is integrated to best effect, a number of responsibilities being brought together under the Ministry of Economic Affairs. In 2003, a detailed analysis was also carried out in order to assess the current state of the national innovation system, and on this basis several guidelines for the future have been worked out. In the two other countries, the systemic approach has been further developed at regional level. In France, a major networking policy has been developed by setting up clusters, known as "Systèmes productifs locaux", followed by competitiveness poles, the list of which was made public in July of this year. The aim of such poles is to network firms, research centres and higher education establishments in order to promote the development and concentration of synergies within the same geographical zone and same dominant sector. Based on this approach, the hope is to achieve a critical size which allows a comparative advantage to be gained around an innovative and targeted project. These poles will benefit from public funds in the form of tax and social relief, and, in particular, loans granted by new agencies for innovation and research. As far as Germany is concerned, even though it has some of Europe's most dynamic regions, regional performance in economic and technological terms varies greatly.

In Belgium, the regions undertake to varying degrees the search for synergies and coordinated policies through regional innovation systems, or the promotion of clusters. In some respects, Flanders appears to have acted earlier, on a larger scale and in integrated fashion, but accurately assessing the results obtained is far from easy. Cooperation between firms therefore remains the exception rather than the rule. In Wallonia, clustering policies have been developed later than in Flanders; an initial assessment of these policies resulted in the improvement of the tool and the launch of competitiveness poles based on the French model. Finally, the Brussels Capital Region seems less advanced in this field, perhaps as a result of specific town and country planning constraints.

Generally speaking, a certain synergy between the three regions' innovation policies would be beneficial, as pointed out by the "High Level Group 3 %" (2005). More in particular, the different entities might consider bolstering the potential of Brussels as a centre of activity. The experience of the successful European regions shows that they have benefited from the presence of a major city playing this catalyst role.

Conclusion

Faced with repeated questions regarding the future of industry in Belgium, this article has assessed the past developments and the current situation in an attempt to outline the steps to be taken if industry is to meet the challenges to come.

Over the course of the last few decades, industry and the economy as a whole have been subject to two inescapable underlying forces, namely sectoral changes, basically in the shape of the transfer of activities and jobs from industry to services, and the increasing globalisation of numerous areas of the economy. In all of the countries with so-called old industry, but even more so in Belgium due to its degree of openness and its specialisation in semi-finished products, industry has responded to these changes by achieving considerable productivity gains, thanks in particular to an increase in capitalisation, and by refocusing on its core business. This has enabled the volume of industrial activity in Belgium to grow at a rate that is in line with that of the economy as a whole, leaving the share of industry in economic activity, measured at constant prices, virtually unchanged. However, this positive response has also brought some painful adjustments as regards employment. Although these latter have taken the form of a dramatic reduction in the number of industrial jobs – more than offset by job creation in the service sector, partly linked to the outsourcing of tasks by industry –, they have been particularly felt at the level of certain branches or regions.

Recently, globalisation, being a source of challenges and opportunities and being synonymous with an increased division of the production process, has again accelerated as nearby emerging economies such as the ten new EU Member States, or large emerging economies, such as China, have appeared. The ensuing fears that production activities will be relocated to these countries on a massive scale, are not presently borne out by the indicators available for Belgium. However, these indicators, which are of a mainly financial nature, are partial and flawed for measuring this trend, which in turn is likely to change quickly. Hence, some surveys indicate that relocation is occupying the thoughts of many chief executives, and leading to effective decisions to reallocate activity. Furthermore, some of these emerging economies, including China, are rapidly progressing towards stages of development more focused on higher-technology products and innovation. It is therefore important to take an in-depth look at the nature of the developments still to come and the responses needed in order to position Belgian firms in geographical markets and in growth activities.

In this respect, what is at stake more than ever is the safeguarding and improvement of the economy's competitiveness. Competitiveness, in the broad sense of the term, is characterised as much by factors directly determining the cost of production (compensation and productivity of production factors, intermediate inputs) as by factors determining the attractiveness and the innovative potential of an economy, by influencing product quality and differentiation, the effective organisation of the production process, etc.

In an increasingly competitive international environment, production costs remain a key factor in the overall competitiveness of an economy and as such, they must be closely monitored in order to ensure that they develop in a reasonable manner. Competitiveness, however, should not have to be wholly reliant on production costs. First of all, as far as hourly wage costs are concerned, emerging economies have an obvious advantage which simply cannot be rivalled, even if such an advantage must be regarded in terms of continued lower productivity. A comparison of production costs is more meaningful with respect to the countries of the EU-15, especially neighbouring countries, which constitute the main markets for our products and are our direct competitors in the allocation of the design, production and distribution process phases defined at European and global level. In this connection, it should be noted that Belgian industry has limited control over its production cost, which is more dependent on intermediate imports than is the case elsewhere, even though the single currency is making a major contribution by eliminating exchange rate fluctuations between euro area partners. However, this does not mean that the development of cost constituents determined in Belgium, both in industry or the branches to which it resorts (wages, the level of which remains high, return on capital or the cost of energy) requires less monitoring.

However, it would increasingly appear that economic dynamism can be measured in terms of its innovative capacity, whether it is in the products which the economy offers or in the production methods which it employs. This capacity is the result of the combination of a number of factors, the extent of which, and even more so the influence on the competitiveness of the economy, are tricky to gauge. The article has reviewed the most important of these factors, thus providing an outline summary of the main axes which are able to guide the response of economic agents in future.

A clear aim must be to preserve and increase the strengths of the Belgian economy, in particular its infrastructure (high rate of investment, including in ICT, transport and communication network, etc.) and the degree of training

of its workforce, which together help to explain the high level of apparent labour productivity. Even in these areas, shortcomings will need to be overcome as a matter of priority, by increasing public investment, by steering students more towards scientific and technical subjects, or by extending the practices of continuing training.

Moreover, in one way or another, innovation, and more particularly a consistent and integrated approach to innovation, seems to be a central feature in the experience of the most dynamic European economies. Innovation amounts to more than just devoting 3 p.c. of GDP to R&D expenditure; it must cut across all areas and involve all elements of society, centred as it is on the acquisition, dissemination and sharing of knowledge. Within the framework of a small, open economy such as Belgium, this includes, to an even greater extent, the process of learning and the appropriation of knowledge developed abroad.

Although all of the players are involved, one particular and multiple role falls to government. Firstly, Belgium is characterised by the structural weakness of its public investment and public funding of R&D. Additional efforts have thus to be made, within the framework of a healthy management of public finances. The State can also take action by creating conditions which are conducive to economic activity and the common good. In this respect, despite the fact that administrative procedures are regularly cited as a handicap, improvements have already been made, as the World Bank indicator shows. Finally, all government levels have a vital role to play in defining and implementing an innovation strategy. Some of the measures taken to achieve this include establishing contact between different players, the search for consensus with regard to the aims to be pursued together and the follow-up and assessment of what is achieved. Provided with such a coherent framework, firms, universities and workers would then benefit from clear and stable prospects for setting up an effective system for collaboration and the sharing of knowledge, conducive to the creation and spread of innovations.

The face of industry will continue to change in the coming years. Industrial firms nevertheless have a major role to play in the renewal of the economic fabric of Belgium. By figuring in the overall adaptation approach, supported by all agents, they will continue to make a key contribution to the growth of the economy's productivity and the prosperity of its inhabitants.

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