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Contents

Economic projections for Belgium – Spring 2010

Introduction

Following the worst recession to hit the global economy in more than sixty years, the recovery which had begun in mid 2009 continued during the rest of the year and in early 2010. Overall, the revival in activity has so far been slightly stronger than expected six months ago, the resolute action of the monetary authorities and governments at the height of the crisis having proved effective in restoring the operation of the financial system and providing support for demand, thereby reviving business and consumer confidence across the world. Thus, after reaching a low point in the second quarter of 2009, international trade began expanding again, while the substantial destocking eased and the financial market tensions faded away in most economic regions.

However, the recovery varied in strength from one country to another: in that regard, the emerging economies of Asia, propelled mainly by China, acted as a driving force. In view of the scale of the financial crisis and the economic recession, a number of factors could hamper this recovery in the advanced economies, after the initial upturn. On the one hand, the sizeable fiscal and monetary stimuli will need to be phased out, giving way to consolidation. Also, restoration of a sound financial position on the part of the various economic agents, though necessary to lay the foundations for balanced, sustainable growth, could depress demand for some time. However, the scale of that adjustment varies from one sector to another – government, financial institutions, non-financial corporations or households – in the different countries.

In the euro area as a whole, and the European Union in general, growth has also returned to positive figures since mid 2009, but it is less vigorous than in the United States, and especially, the emerging economies. The economic recession has highlighted major internal or external imbalances in some economies, while the growth of public deficits and debts has fuelled fears on the financial markets concerning the long-term sustainability of public finances; in Greece's case it triggered liquidity problems. On that occasion, as had also happened at the time of the autumn 2008 banking crisis, the various institutions involved – IMF, EC, ECB – and the European governments took measures during May 2010 to ensure that the tensions on certain segments of the government bond market did not spread to the financial sector as a whole. However, those plans will need to be accompanied by drastic fiscal retrenchment and measures to strengthen the competitiveness of the economies concerned.

The macroeconomic projections for 2010-2011 from the Eurosystem's six-monthly exercise for the euro area, presented in the June 2010 ECB Bulletin[1], and the corresponding projections for Belgium were therefore produced in a context which is both encouraging and highly uncertain. For the euro area, compared to the December 2009 findings, the new projections record growth which has undergone slight upward revision in 2010, as a result of foreign demand. However, domestic demand remains sluggish, and that explains why the growth rate predicted for 2011 is still low. In the short term, inflation is driven higher by the combined effects of the recent increase in commodity prices and the depreciation of the euro. Yet domestic price pressure remains weak and should continue to be subdued during the projection period.

(1) The Eurosystem's macroeconomic projections for the euro area, published in June and December each year, are updated by the ECB in March and September.

In Belgium the picture is broadly the same, although – in the absence of major imbalances – the economy has proved relatively resilient during the recession and should enjoy growth slightly above the euro area average in 2010 and 2011. This article explains those findings in detail. The first section summarises recent developments and the outlook for the international environment, together with the Eurosystem central bank projections for the euro area. A box sets out the technical assumptions underlying this joint exercise. Section 2 gives the detailed results for activity and employment in Belgium, section 3 examines the components of demand, while section 4 deals with inflation and labour costs. Section 5 focuses on the general government accounts. In that regard, it should be noted that the projections for public finances take account only of measures which have been formally approved by the government, with sufficiently specific implementing conditions. The final section looks at the risks surrounding these projections, and compares them with the other main forecasts available for Belgium.

The Bank's projections were finalised on the basis of data available as at 27 May 2010.

1. International environment

1.1 The global economy

The revival in activity and international trade which began in mid 2009, encouraged by accommodating economic policies, the easing of financial market tensions, and the restoration of business and consumer confidence, continued and even gathered momentum during the second half of 2009 and at the start of 2010. However, the strength of the recovery varied from one economic region to another. The emerging Asian countries maintained steady growth, making a major contribution to the recovery of world trade, and taking in tow the economies with which they have close links, including the commodity exporting countries. In China, in the first quarter of 2010, GDP growth reached 11.9 p.c. compared to the corresponding quarter of the previous year.

Growth was weaker in the advanced economies, with GDP up by 2.5 p.c. in the United States, 4.2 p.c. in Japan and 0.5 p.c. in the European Union as a whole, so that neither output nor exports there have yet regained their pre-crisis level. In that context, central banks kept their key interest rates at historically low levels, after the large and rapid cuts adopted during the recession became widespread, and have so far only just started to dismantle the exceptional measures which they had taken to avert the risks of the collapse of the financial system in late 2008 and early 2009. Similarly, the support measures taken by the governments have generally been kept on, although their impact on activity is now less than it was at first.

The strengthening of the global economy and the easing of financial market tensions triggered a marked recovery in business confidence throughout 2009 and 2010, with the survey indicators returning to levels comparable to their historical average. That improvement in turn presages a continuing revival in economic activity, since firms could become less restrictive in their attitude towards stock-building, employment or investment.

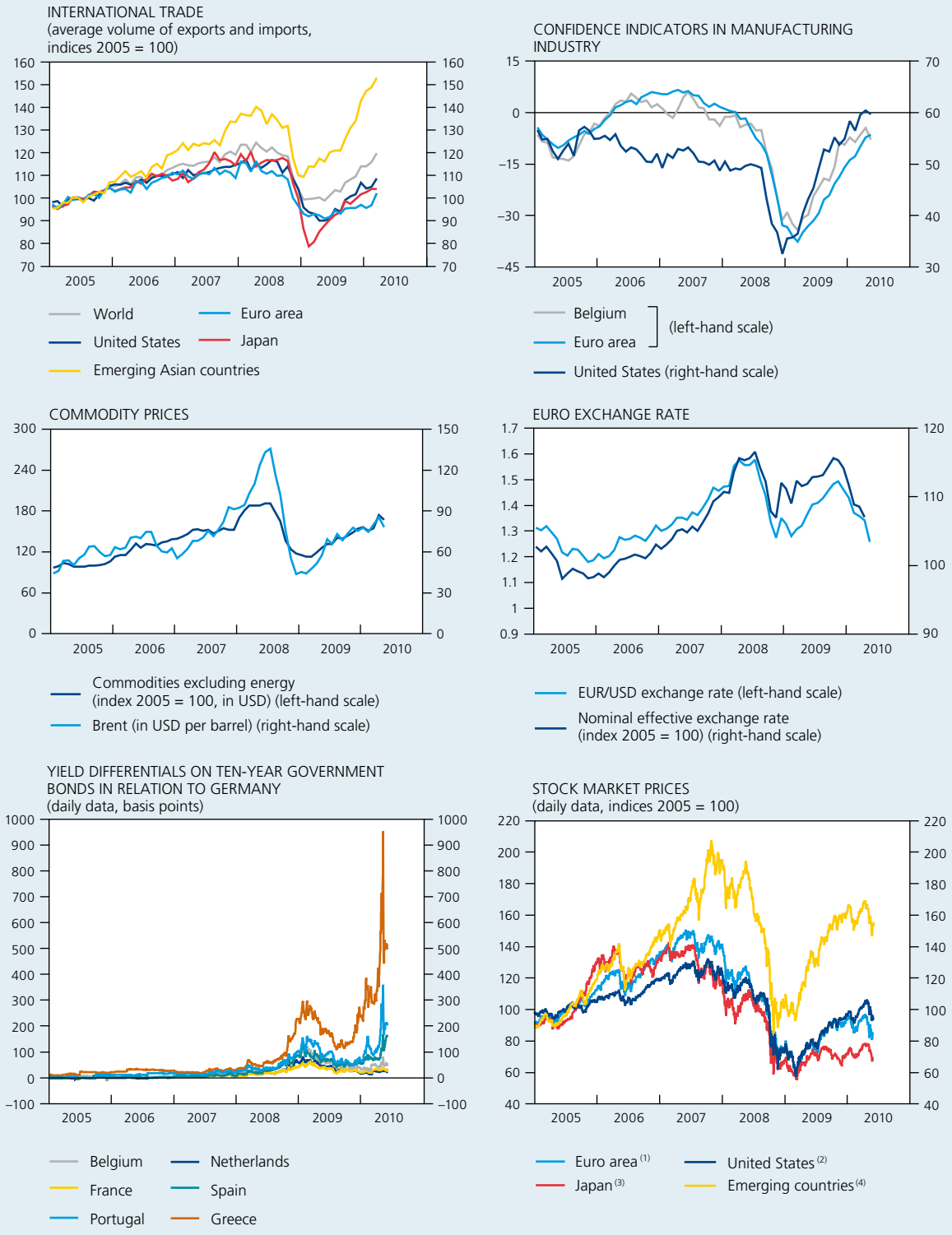
At the same time, the more sustained demand, particularly from the emerging economies, has brought a reversal in the trend in commodity prices. After reaching a low point in December 2008 at around USD 40 per barrel of Brent, crude oil prices on the international markets doubled to an average of USD 80 in May 2010, exerting direct upward pressure on inflation.

However, there are various factors suggesting that the strengthening of activity could be relatively modest in the advanced economies, as is generally the case after economic recessions accompanied by a financial crisis. First, the effect of temporary factors which had permitted the recovery – notably the measures encouraging the purchase of new vehicles in certain countries, the acceleration of public investment, and the turnaround in the trend in stocks – is likely to wane. The other components of domestic demand could take some time to gain momentum, since at this stage the effects of the economic and financial crisis have not yet been fully absorbed. Not only did the crisis give rise to excess capacity – concerning both physical capacity and labour – but it also led to a deterioration in the balance sheet position of credit institutions, firms and households, exacerbated in some countries by a major property market correction. Restoration of that position by a process of reducing debt levels or increasing savings is likely to depress demand. Finally, the recession resulted in a sharp deterioration in public finances worldwide, threatening their long-term sustainability unless consolidation measures are taken.

These factors seem particularly significant for the euro area countries, as is evident from the financial markets' increasing attention to the situation in certain countries, reflected in a marked widening of the spreads on government bonds in relation to German *Bunds*. In general, recent developments have highlighted external imbalances (in terms of competitiveness) and internal imbalances (via an excessive increase in debt levels) within the euro area.

CHART 1 DEVELOPMENTS CONCERNING THE FINANCIAL MARKETS, BUSINESS CONFIDENCE AND INTERNATIONAL TRADE

(monthly data, unless otherwise stated)



Sources: BIS, CPB, HWWI, Thomson Reuters Datastream.

(1) Dow Jones Euro Stoxx Broad index.
(2) Wilshire 5000 index.
(3) Topix index.
(4) MSCI Emerging Markets index.

The box below discusses the tensions and their consequences for the euro area. Those fears have also sparked the depreciation of the euro by causing a downward revision of the growth forecasts: the exchange rate dropped from USD 1.44 at the end of 2009 to USD 1.26 per euro, on average, in the last 10 days of May 2010, a 13 p.c. depreciation. At the same time, European stock market indices fell by around 10 p.c. against their 2010 peak, driven down by financial stocks.

Against this backdrop of a recovery in global activity accompanied by great uncertainty in the advanced economies, the forecasts for the main economic regions indicate continuing growth in 2010 and 2011, following the 0.9 p.c. fall in world GDP in 2009. That year saw the first global recession since the Second World War. However, some countries such as China and India had been spared, and maintained clearly positive growth. According to the EC forecasts, the emerging Asian countries and commodity exporting countries such as Brazil and Russia should see vigorous growth again in 2010 and 2011, close to the pre-crisis average.

GDP growth is likely to be less robust in the advanced economies, being estimated at 2.8 p.c. in the United States, 2.1 p.c. in Japan, and 1 p.c. on average in the EU. In these first two cases, the growth rate is expected to fall slightly in 2011, as the temporary effect of the initial bounce will only gradually be replaced by the endogenous strengthening of demand for consumption and investment. In the EU, the expansion of activity is set to continue strengthening in 2011, though it will only reach 1.7 p.c. However, these figures are insufficient to reduce the unemployment rate.

TABLE 1 PROJECTIONS FOR THE MAIN ECONOMIC AREAS

(percentage changes compared to the previous year, unless otherwise stated)

	2009	2010	2011
	Actual	Projections	
GDP in volume			
World	–0.9	4.0	4.0
of which:			
United States	–2.4	2.8	2.5
Japan	–5.2	2.1	1.5
European Union	–4.2	1.0	1.7
China	8.7	10.3	9.4
India	5.7	8.1	8.0
Russia	–7.9	3.7	4.0
Brazil	–0.2	5.7	4.5
p.m. World imports	*–11.1*	*7.7*	*6.0*
Inflation (1)			
United States	–0.4	1.7	0.3
Japan	–1.4	–0.5	–0.4
European Union	1.0	1.8	1.7
Unemployment (2)			
United States	9.3	9.7	9.8
Japan	5.1	5.3	5.3
European Union	8.9	9.8	9.7

Source: EC (Spring forecasts, May 2010).
(1) Consumer price index.
(2) Percentages of the labour force.

Box 1 – Tensions on the government bond markets and their consequences for the euro area

The private debt crisis which had begun on the US property market and affected the financial sector in many countries by August 2007, and even more seriously from September 2008 onwards, causing the severest global recession for sixty years, ultimately led to a public debt crisis in certain European countries. In October 2009, the revelation of a large upward revision in Greece's public deficit generated tensions on the Greek public debt market. In April 2010, concerns about the sustainability of Greek public finances worsened, generating a steep rise in the interest rates at which the Greek State was able to raise finance, and thus triggering a liquidity crisis. Moreover, contagion effects began to appear. Financial operators focused their attention on the situation in countries facing similar – though much less acute – problems concerning public finances and competitiveness, such as Portugal and Spain. In addition, fears that the insolvency of Greece, and perhaps other countries, too, might cause losses which could destabilise the banking sector of the creditor countries increased the banks' financing costs. Finally,

the potential impact of that turbulence on the financing of the economy caused a decline in share prices and a rise in the risk premium component of corporate bonds, as well as a depreciation of the euro.

The authorities took various measures to contain the crisis and safeguard financial stability in the euro area. That involved providing financial assistance for the States facing a self-fulfilling loss of confidence on the financial markets, to give them time to regain their credibility, as well as restoring the operation of the disrupted markets, and giving an assurance of radical measures to consolidate the public finances of the countries in difficulty.

On the one hand, the European budgetary authorities and the IMF set up a system of conditional financial assistance. On 2 May 2010, the Eurogroup decided to grant this type of support to Greece : under a three-year programme, Greece will be able to borrow 110 billion euro, namely 30 billion from the IMF and 80 billion from the other euro area Member States ; those loans are conditional on the application of stringent fiscal retrenchment measures (an improvement in the structural balance of at least 10 p.c. of GDP between 2009 and 2014, much of it during 2010, and a reform of the pension system). The agreement also provides for the implementation of structural reforms to strengthen the Greek economy, notably by improving the operation of the labour market. Since this decision brought only very brief respite on the financial markets, the Ecofin Council decided on 9 and 10 May 2010 to create a European stabilisation mechanism for a three-year period, for the purpose of granting conditional financial aid to countries getting into difficulty on account of exceptional events beyond their control, up to a total of 500 billion euro. European Commission loans could fund a total of 60 billion euro intended for all EU Member States. In addition, a Special Purpose Vehicle guaranteed by the euro area Member States could contribute up to 440 billion euro towards financing assistance for euro area countries. The IMF is to participate in the support operations and the definition of the conditions ; it is expected to provide assistance equivalent to at least half of the European aid. At the same meeting, the Council also gave a firm undertaking to speed up fiscal consolidation and structural reforms where necessary. In that connection, the Spanish and Portuguese governments announced new fiscal measures.

In addition, on 10 May 2010, the ECB Governing Council – after having adapted the rules on guarantees accompanying Eurosystem loans – adopted a series of measures designed to ease the serious tensions on certain markets. In particular, it decided to intervene on the public and private bond markets of the euro area in order to remedy the disruption on the securities markets (*Securities Markets Programme*), and to neutralise the impact of those operations on liquidity. It also reactivated the supply of unlimited three- and six-month liquidity at a fixed rate, and the provision of liquidity in US dollar. Monetary policy will continue to aim at price stability in the euro area : decisions on the monetary policy stance will depend on an assessment of the risks of inflation – in particular, it is important to ensure that a false perception of a monetary financing of the public sector does not fuel inflation expectations – and the risks of deflation – the effect of fiscal adjustments on demand and hence on prices being duly taken into account.

It is vital to learn lessons from the crisis in order to improve the governance of the euro area. The strengthening of national fiscal institutions is likewise crucial. On 12 May 2010, the European Commission published a series of proposals for strengthening the coordination of economic policies, centring on four topics : an improvement in the application of the Stability and Growth Pact (with greater emphasis on the long-term sustainability of public finances, sanctions in the event of insufficient progress towards the medium-term objectives, and heavier penalties under the excessive deficit procedure) ; the supervision of macroeconomic developments in the euro area countries (including the possibility of issuing recommendations in the event of imbalances, loss of competitiveness, or excessive increases in credit and asset prices) ; introduction of a "European semester" permitting coordination of fiscal and structural supervision and their integration in the national parliamentary processes ; and consolidation of the crisis management system for the euro area shaped by the European stabilisation mechanism, comprising assistance to safeguard financial stability and strict conditions to avoid moral hazard, i.e. implicit encouragement for fiscal laxity. Since then, a working group on economic governance set up by the president of the European Council has started work. It is to report to the European Council on 17 June and plans to present its conclusions in October 2010.

1.2 Eurosystem projections for the euro area

Boosted by the strengthening export markets, the support measures adopted under the government recovery plans to combat the recession, and the easing of the strong tendency towards de-stocking recorded a year earlier, activity in the euro area began expanding again from the third quarter of 2009. However, growth was modest, at 0.7 p.c. in cumulative terms up to the first quarter of 2010, following a maximum fall of 5.2 p.c. during the recession.

According to the Eurosystem projections, the recovery should continue at a modest pace in 2010, the support provided by foreign demand being partly offset by the gradual disappearance of the temporary effects associated with economic policy measures or stock movements. The recovery should strengthen gradually during 2011, as domestic demand picks up. In all, after a fall of 4.1 p.c. in 2009, GDP is projected to grow in real terms by between 0.7 and 1.3 p.c. in 2010 and between 0.2 and 2.2 p.c. in 2011. As is generally the case after a financial crisis, the recovery rate will therefore be modest, taking account of the necessary adjustments to the balance sheet position of financial institutions, non-financial corporations and households, while substantial surplus production capacity still persists as yet.

Turning to the components of demand, exports could be underpinned by strong foreign market growth, while benefiting from the favourable impact on competitiveness of the euro's depreciation. Taking account of the excess capacity and the still high level of uncertainty over the outlook for demand, business investment will be slow to respond to the revival in activity. Moreover, although the property market corrections taking place in certain euro area countries have become less severe in recent months, they will continue to depress investment in housing. Finally, the growth of consumption will initially be curbed by disposable income, affected by wage moderation and the weakness of employment. Unemployment is in fact likely to continue rising during the projection period, now that the initial shock resulting from the decline in output in late 2008 and early 2009 has been largely absorbed by the simultaneous reduction in working time per person and productivity. These factors restraining domestic demand should gradually ease, as the improvement in the economic situation continues. However, the savings rate is likely to remain significantly above its pre-crisis level, owing to higher unemployment and the great uncertainty over the economic and financial prospects.

Inflation has gathered pace considerably in the recent period, from an average of 0.3 p.c. in 2009 to 1.5 p.c. in April 2010, owing to the impact of energy prices. That movement, due to the disappearance of base effects resulting from the sharp fall in oil prices a year ago, followed by their renewed rise and the recent euro depreciation, is expected to continue during the year. As demand is still relatively feeble, however, domestic inflationary pressures should be contained in regard to both unit labour costs and profit margins. Overall, inflation is expected to average between 1.4 and 1.6 p.c. in 2010 and between 1 and 2.2 p.c. in 2011.

TABLE 2 EUROSYSTEM PROJECTIONS

(percentage changes compared to the previous year)

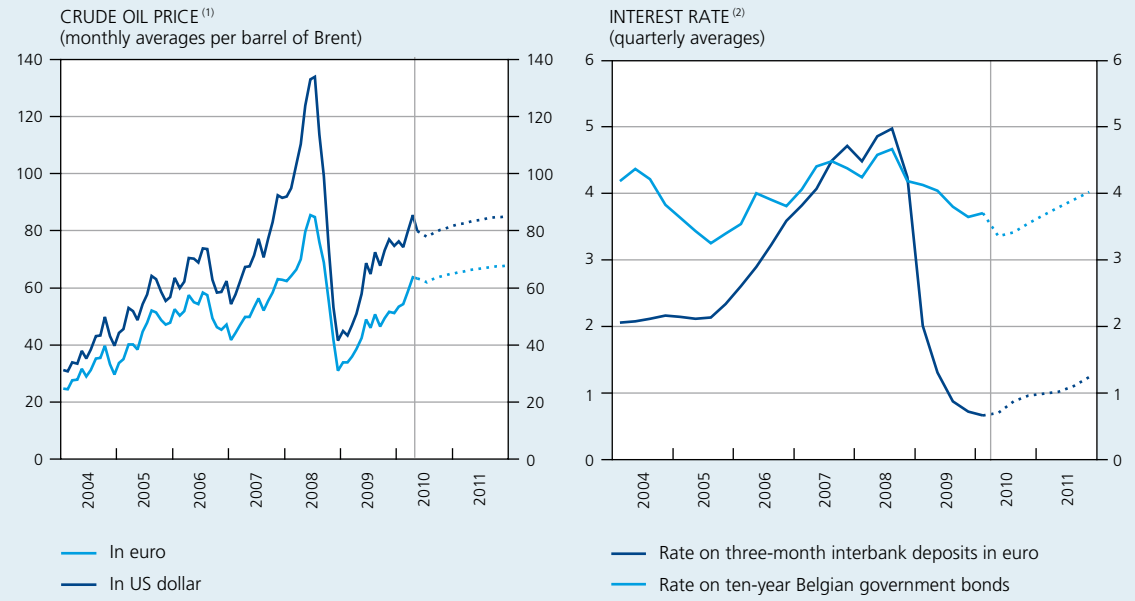
	Euro area			*p.m. Belgium*		
	2009	2010	2011	*2009*	*2010*	*2011*
Inflation (HICP)	0.3	1.4 / 1.6	1.0 / 2.2	*0.0*	*2.0*	*1.9*
GDP in volume	–4.1	0.7 / 1.3	0.2 / 2.2	*–3.0*	*1.3*	*1.7*
of which:						
Private consumption	–1.2	–0.2 / 0.4	–0.2 / 1.6	*–1.7*	*0.6*	*1.2*
Public consumption	2.6	0.3 / 1.3	–0.3 / 1.1	*1.6*	*1.4*	*1.3*
Investment	–10.8	–3.4 / –1.2	–2.1 / 2.7	*–4.2*	*–1.4*	*1.5*
Exports	–13.2	5.5 / 9.1	1.1 / 7.9	*–12.6*	*6.4*	*4.3*
Imports	–12.0	3.8 / 7.0	0.4 / 6.8	*–12.8*	*5.2*	*4.1*

Sources: ECB, NBB.

Box 2 – Assumptions adopted for the projections

Produced as part of a joint exercise, the economic projections for the euro area, and the Bank's projections for Belgium, are based on a set of technical assumptions drawn up jointly by the ECB and the national central banks of the Eurosystem. The main ones are summarised here:

ASSUMPTIONS CONCERNING OIL PRICE AND INTEREST RATE MOVEMENTS



Source: ECB.
(1) Actual figures up to April 2010, assumptions from May 2010.
(2) Actual figures up to the first quarter of 2010, assumptions from the second quarter of 2010.

- The interest rate assumptions are based on market expectations. As an annual average, rates on three-month interbank deposits are expected to fall from 1.2 p.c. in 2009 to 0.8 p.c. in 2010, before picking up to 1.1 p.c. in 2011. The yield on ten-year Belgian government bonds is projected at 3.5 p.c. in 2010 and 3.9 p.c. in 2011.
- Bilateral exchange rates are held constant at their value in the second half of May 2010, namely USD 1.26 to the euro.
- In line with the implicit prices reflected in forward contracts, the price of a barrel of Brent is expected to average USD 79.5 in 2010 and USD 83.7 in 2011, compared to USD 61.9 in 2009.
- Following the slump at the end of 2008 and in early 2009, world trade began growing again last year. That expansion is set to continue in 2010 and 2011. As an annual average, demand from Belgium's export markets, calculated on the basis of the movement in the imports of the various trading partners, declined by 10.8 p.c. in 2009. The volume of demand is projected to grow by 7 p.c. in 2010 and 4.2 p.c. in 2011.

Regarding public finances, the projections are based – in accordance with the Eurosystem conventions – on the macroeconomic environment and policy measures that have already been announced and specified in sufficient detail by governments, and which have been or are likely to be approved by national parliaments.

EUROSYSTEM PROJECTION ASSUMPTIONS

	2009	2010	2011
		(annual averages)	
Interest rate on three-month interbank deposits in euro	1.2	0.8	1.1
Yield on ten-year Belgian government bonds	3.9	3.5	3.9
EUR/USD exchange rate	1.39	1.29	1.26
Oil price (US dollars per barrel)	61.9	79.5	83.7
		(percentage changes)	
Export markets relevant to Belgium	–10.8	7.0	4.2
Competitors' export prices	–3.9	4.3	2.2

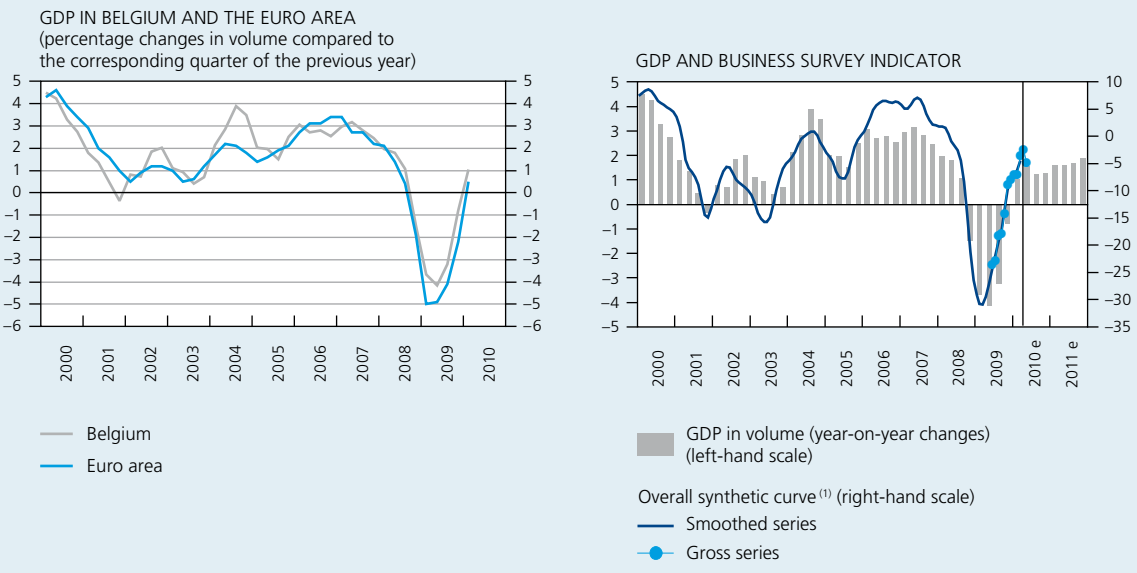
Source: ECB.

2. Activity and employment

In parallel with the improvement in the business survey indicators, activity in Belgium has mirrored the recovery recorded from the middle of last year in the euro area. Real GDP growth became positive again from the third quarter of 2009, though it has remained relatively weak since then. According to the NAI data, following an initial 0.7 p.c. bounce in the third quarter, the quarterly growth rate subsided to 0.3 p.c. in the fourth quarter of 2009, and then – according to the flash estimate – to 0.1 p.c. in the first quarter of 2010. However, that last figure is

CHART 2 GDP AND THE BUSINESS SURVEY INDICATOR

(data adjusted for seasonal and calendar effects, unless otherwise stated)



Sources: EC, NAI, NBB.
(1) Seasonally adjusted data.

affected to some extent by the adverse weather conditions for the construction sector.

Though the recession was exceptionally severe – on a scale not seen since the Second World War – its impact was a little less harsh in Belgium than elsewhere, the decline in GDP averaging 3 p.c. in 2009, against an average of –4.1 p.c. in the euro area. Similarly, the recovery seen so far has been a little more robust, with annual GDP growth reaching 1 p.c. in the first quarter of 2010, against 0.6 p.c. in the euro area. The absence of major structural imbalances in terms of external accounts, private sector debt and the property market – imbalances which do exist in some euro area countries – is a factor in this relative resilience of the Belgian economy.

In that context, activity should continue to gain strength in 2010 and 2011, underpinned in particular by the improvement in the international environment and the expected gradual strengthening of domestic demand. According to the Bank's projections, annual GDP growth should average 1.3 p.c. in 2010 and 1.7 p.c. in 2011, slightly outpacing the growth forecast for the euro area. However, that will still be well below the growth of 2.5 p.c. per annum recorded from 2004 to 2007, before the economic and financial crisis.

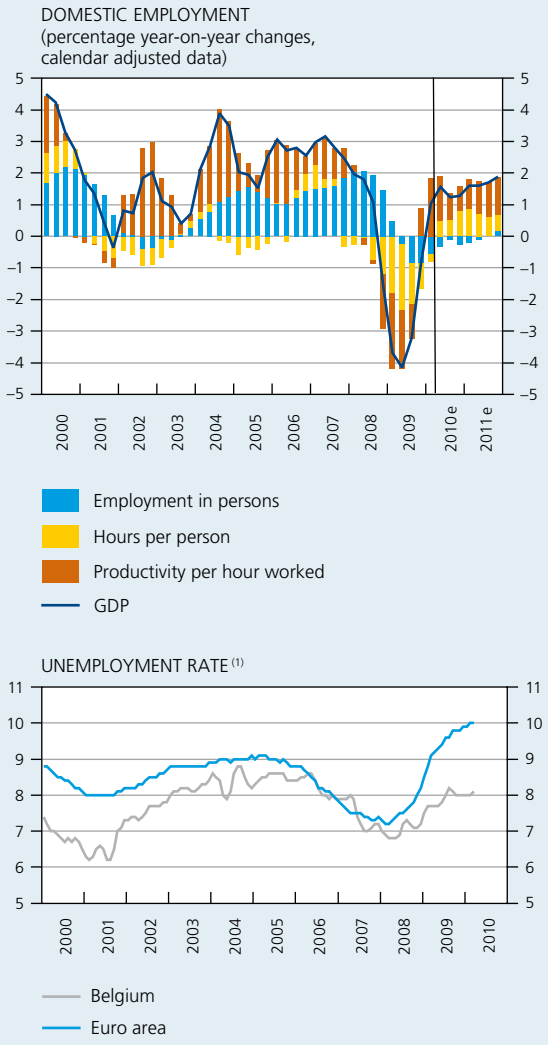
In view of the severity of the 2009 recession, it now seems that job losses were relatively limited in that year. In fact, large-scale, extended recourse to systems permitting some flexibility in the use of labour, mainly temporary lay-offs for manual workers but also additional measures under the recovery plan – notably the option of suspending execution of employment contracts for white-collar workers under certain conditions, or measures to encourage reductions in working time – cushioned the impact on employment, and probably indirectly supported demand, during the recession period.

By reducing the actual working time of persons in work, these systems enable firms to adapt, to some extent, the volume of labour used without having to make staff redundant. The implicit average working time per person therefore declined by 1.5 p.c. in 2009. However, that adjustment is partial, as sudden fluctuations in activity are generally accompanied by cyclical movements affecting productivity per hour worked. Thus, when GDP dropped by 3 p.c. in 2009, the volume of labour fell by 1.8 p.c. and hourly productivity declined by 1.1 p.c.

In 2010 and 2011, firms are expected to make substantial use of the expansion of activity to gradually restore their productivity, so that the volume of labour will increase by only 0.1 p.c. in 2010 and 0.6 p.c. in 2011. Moreover, as use of the system of temporary lay-offs diminishes, the average working time of employees is expected to return gradually to its pre-crisis level. Therefore, as an annual average, the fall in the number of persons in employment is likely to continue in 2010, with a 0.3 p.c. decline, compared to 0.4 p.c. in 2009.

In relation to the fourth quarter of 2008, over 38,000 jobs were lost during 2009, and another 13,000 job losses are forecast for 2010. The projections anticipate a slight improvement during 2011. The number of unemployed job-seekers is expected to increase by 127,000 units between the end of 2008 and the end of 2011, owing to the rise in the number of persons joining the labour

CHART 3 EMPLOYMENT AND UNEMPLOYMENT



Sources: EC, NAI, NEO, NBB.
(1) Harmonised unemployment rate (age 15 and over), as a percentage of the labour force.

TABLE 3 LABOUR SUPPLY AND DEMAND

(calendar adjusted data, annual averages, unless otherwise stated)

	2007	2008	2009	2010 e	2011 e
			(percentage changes)		
GDP	2.8	0.8	–3.0	1.3	1.7
Volume of labour	1.9	1.3	–1.8	0.1	0.6
Domestic employment in persons	1.6	1.9	–0.4	–0.3	0.0
			(changes in thousands of persons)		
Domestic employment	70.3	82.1	–16.4	–14.6	–1.3
p.m. Change during the year[1]	*80.9*	*64.2*	*–38.5*	*–12.9*	*8.2*
Employees	62.9	72.0	–20.4	–14.9	–2.3
of which: branches sensitive to the business cycle	49.0	48.7	–44.7	–35.2	–23.1
Self-employed persons	7.4	10.1	4.0	0.3	1.0
Frontier workers	1.8	0.3	0.0	0.0	0.0
Total employment	72.1	82.5	–16.4	–14.6	–1.3
Unemployed job-seekers	–53.1	–25.7	50.4	39.6	37.6
p.m. Change during the year[1]	*–49.8*	*–4.9*	*59.6*	*42.7*	*24.5*
Labour force	19.0	56.7	34.1	25.0	36.3
p.m. Harmonised activity rate[2]	*67.1*	*67.1*	*66.9*	*67.0*	*67.1*
Harmonised employment rate[2]	*62.0*	*62.4*	*61.6*	*61.1*	*60.8*
Harmonised unemployment rate[3]	*7.5*	*7.0*	*8.0*	*8.3*	*8.8*

Sources: EC, NAI, NEO, NBB.

(1) Difference between the fourth quarter of the year concerned and the fourth quarter of the previous year.

(2) Percentages of the population of working age (15-64 years), non calendar adjusted data.

(3) Percentages of the labour force (15-64 years), non calendar adjusted data.

market. While unemployment averaged 7 p.c. in 2008 and 8 p.c. in 2009, the rate is set to rise to 8.3 p.c. in 2010 and 8.8 p.c. in 2011. However, the rise in the unemployment rate since the outbreak of the economic crisis has been considerably smaller in Belgium than in the euro area.

3. Demand components

In 2010, export growth is again set to be the main factor supporting the revival in economic activity which began in mid 2009. Exports should in fact benefit from both strong expansion on the export markets where Belgian firms are active and from the depreciation of the euro. Conversely, the contribution of domestic demand to GDP growth is likely to remain very modest in 2010. During 2011, domestic demand should nevertheless strengthen to become the main engine of GDP growth. In the wake of that strengthening demand, imports are expected to grow more rapidly, considerably reducing the contribution of net exports to GDP growth.

Just as the collapse of world trade in the second half of 2008 was the main factor in the spread of the economic crisis, the ensuing recovery of world trade is the principal driver behind the upturn in economic activity since mid 2009. That recovery is expected to continue in 2010 and 2011, albeit at a less sustained pace. After contracting by 10.8 p.c. in real terms in 2009, the export markets of Belgian firms are set to expand by 7 p.c. in 2010 and 4.2 p.c. in 2011. The depreciation of the euro is also stimulating exports. Overall, they should return to positive growth, reaching 6.4 p.c. in 2010 and 4.3 p.c. in 2011.

In the absence of support from domestic demand, however, imports are set to grow more slowly in 2010, so that net exports should make a positive contribution of 1 percentage point to GDP growth this year. If domestic demand also begins rising again in 2011, import growth is likely to decelerate by less than exports, so that the contribution of net exports will be considerably smaller that year, at 0.4 percentage point.

TABLE 4 GDP AND MAIN EXPENDITURE CATEGORIES

(calendar adjusted volume data; percentage changes compared to the previous year, unless otherwise stated)

	2007	2008	2009	2010 e	2011 e
Private consumption expenditure	1.6	1.0	–1.7	0.6	1.2
Consumption expenditure of general government	2.6	3.3	1.6	1.4	1.3
Gross fixed capital formation	5.7	3.8	–4.2	–1.4	1.5
Housing	–0.8	–1.6	–2.9	–1.3	–0.1
General government	3.6	3.4	11.7	–0.7	8.8
Enterprises	8.7	6.1	–6.4	–1.5	1.2
p.m. Total final domestic expenditure[(1)]	*2.7*	*2.2*	*–1.5*	*0.4*	*1.3*
Change in stocks[(1)]	0.1	–0.2	–1.5	–0.1	0.1
Net exports of goods and services[(1)]	0.2	–1.0	0.0	1.0	0.4
Exports of goods and services	4.4	1.4	–12.6	6.4	4.3
Imports of goods and services	4.4	2.7	–12.8	5.2	4.1
GDP	2.8	0.8	–3.0	1.3	1.7

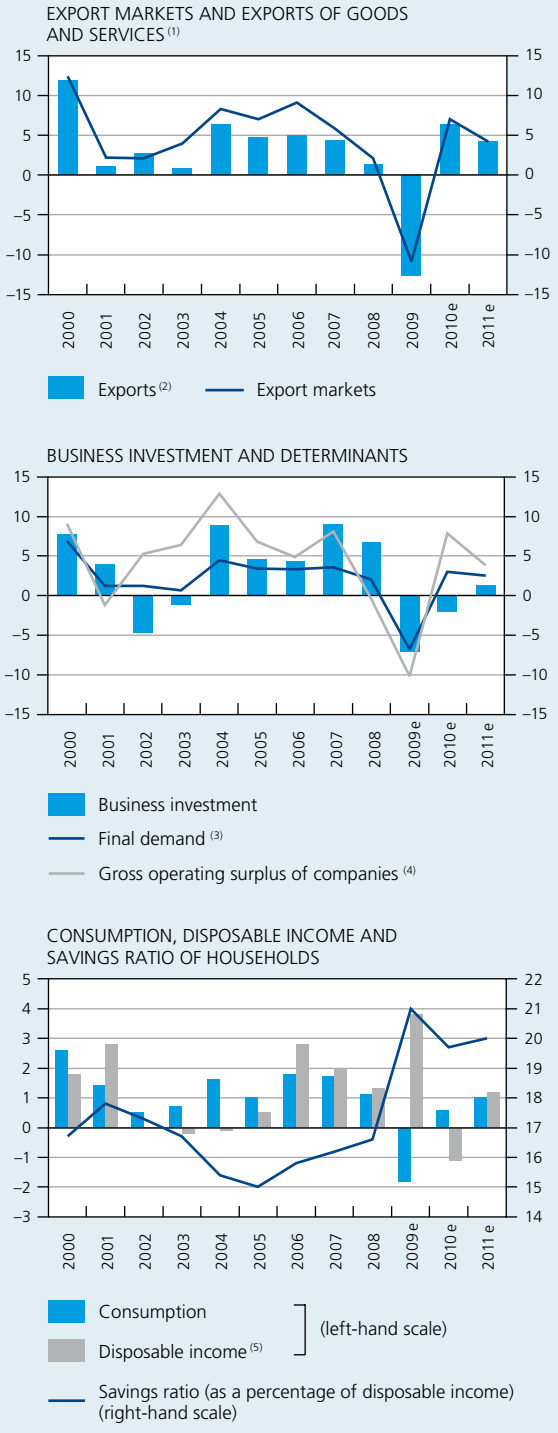
Sources: NAI, NBB.
(1) Contribution to the change in GDP.

Domestic demand is also projected to remain relatively weak in 2010, but all its components are expected to return to positive growth in 2011. Business investment is likely to continue falling in 2010 – by 1.5 p.c. in real terms – after a very steep 6.4 p.c. decline in 2009. In the euro area as a whole, business investment recorded an even larger fall (14.1 p.c.). Following the significant deterioration in global economic activity, the capacity utilisation rate of firms contracted sharply. According to the quarterly survey of manufacturing industry, that rate declined from the figure of 82.4 p.c. recorded in the third quarter of 2008 to a historic low of 70.1 p.c. in the first quarter of 2009. Although a recovery followed – the utilisation rate reaching 77.2 p.c. in the first quarter of 2010 – that residual excess capacity is likely to continue to dampen firms' propensity to invest for some time to come. True, final demand is predicted to begin rising in 2010, but the growth rate is likely to fall short of its pre-crisis level, preventing the rapid absorption of excess capacity. Business investment is not expected to expand until 2011, and then only by 1.2 p.c. In regard to investment financing, two opposing movements should partly offset one another. On the one hand, the gradual rise in long-term interest rates could curb business investment slightly. Moreover, until the financial sector has finished reorganising its own activities, a question mark remains over its willingness to satisfy growing demand for credit at an acceptable price. On the other hand, after falling by 10.7 p.c. in 2009, the gross operating surplus of enterprises is projected to rise again in 2010 and 2011, by 7.9 and 3.8 p.c. respectively; that would enable firms to revert to making more use of internal financing. That increase in the gross operating surplus originates partly from expansion in the volume of sales – of around 2.5 p.c. per annum – and partly from an increase in the gross operating margin per unit of sales. Against the backdrop of strengthening demand, selling prices are in fact likely to rise faster than unit costs in 2010, the latter being held down by particularly moderate movements in labour costs. Expressed as a percentage of GDP, this increase in the gross operating surplus of firms will, however, be insufficient to negate the whole of the decline recorded in 2008 and 2009.

In real terms, the decline in investment in housing which had begun in 2007 is set to continue in 2010 and in 2011, albeit at a slower rate. While a fall of 2.9 p.c. had been recorded in 2009, households are projected to cut their investment in the construction of new housing or the renovation of existing housing by 1.3 and 0.1 p.c. respectively. These findings are attributable mainly to the expected adverse movement in the real disposable incomes of households. Since the unemployment rate is still rising, the increase in real wages remains modest, and inflation is weakening consumer confidence and disposable incomes, individuals are reluctant to spend on major items such as house building or renovation. Moreover, mortgage interest rates could gradually increase, as the banks may pass on to their customers the expected rise in long-term interest rates, and the balance sheet problems which banks are facing could cause them to cut back their

CHART 4 MAIN EXPENDITURE CATEGORIES

(non calendar adjusted volume data, percentage changes compared to the previous year, unless otherwise stated)



Sources: ECB, NAI, NBB.
(1) Seasonally adjusted data.
(2) Calendar adjusted data.
(3) Excluding change in stocks.
(4) Value data.
(5) Data deflated by the private consumption expenditure deflator.

lending. Finally, the moderate price rises on the secondary market could be a factor contributing to the weakness of households' propensity to invest.

In 2009, private consumption recorded an unusually sharp fall of 1.7 p.c. in real terms. That decline must be seen in the context of the exceptionally great uncertainty prevailing at the height of the economic and financial crisis. Adverse prospects for the labour market, and hence for future remuneration, severe losses on financial assets and the deterioration in public finances undeniably prompted individuals to delay certain major purchases. In 2010, private consumption will cease falling, but growth is projected at only 0.6 p.c. That is due mainly to the contraction of disposable income. In 2009, the real disposable income of households increased strongly as a result of several government measures aimed at reducing the net personal income tax bill, and because individuals benefited from the fact that the indexation of wages and social benefits was significantly greater than the erosion of purchasing power owing to the fall in inflation. Since the government did not repeat those measures and since the indexation of wages and social benefits is likely to be considerably below the rise in inflation, real disposable incomes are set to fall by 1.1 p.c. in 2010. Moreover, (real) wage moderation contributes to the reduction in the growth of disposable incomes, although it does help to maintain employment. In 2010, though the savings ratio is likely to be lower than in 2009, it is still projected reach nearly 20 p.c. of household disposable incomes, which is well above its pre-crisis level. The outlook for household incomes in fact remains uncertain, in view of the deteriorating situation on the labour market and in public finances following the recession. In 2011, consumption is forecast to increase again, bolstered by the growth of disposable incomes and an easing of the labour market situation. Although wage growth is expected to remain modest in real terms in 2011, real disposable incomes are projected to increase again, by 1.2 p.c.

In contrast to the rise in private sector spending, the growth of general government consumption expenditure is expected to slacken pace slightly, falling from 1.6 p.c. in 2009 to 1.4 p.c. in 2010 and 1.3 p.c. in 2011. General government investment which had expanded strongly by 11.7 p.c. in 2009, is set to subside a little in 2010. Fluctuating according to the election timetable, it is expected to record a further sharp rise of 8.8 p.c. in 2011, in the run-up to the 2012 municipal elections.

4. Prices and costs

After falling to a maximum negative level of –1.7 p.c. in July 2009, owing to the steep decline in oil prices, consumer price inflation returned to positive figures from December and continued to rise during the ensuing months. That rise was initially due to the disappearance of the base effects connected with the oil price movements; it was reinforced in recent months by a further rise in commodity prices on the international markets, combined with a depreciation of the euro against the dollar. In April 2010, inflation measured by the HICP reached 2 p.c.

According to the assumptions adopted for this exercise, prices will maintain their upward trend in 2010 and 2011, although they will rise less steeply than at the beginning of this year. As an annual average, they are expected to increase from 61.9 dollars per barrel of Brent in 2009, or 44.1 euro per barrel, to 79.5 dollars in 2010 and 83.7 dollars in 2011 (61.5 and 66.7 euro respectively in 2010 and 2011), one reason being the revival in demand from the emerging countries. This rise accounts for much of the acceleration in overall inflation, forecast to rise from 0 p.c. in 2009 to 2 p.c. in 2010 and 1.9 p.c. in 2011. The health index is projected to increase by 1.3 p.c. in 2010 and 1.7 p.c. in 2011, following a 0.6 p.c. rise in 2009.

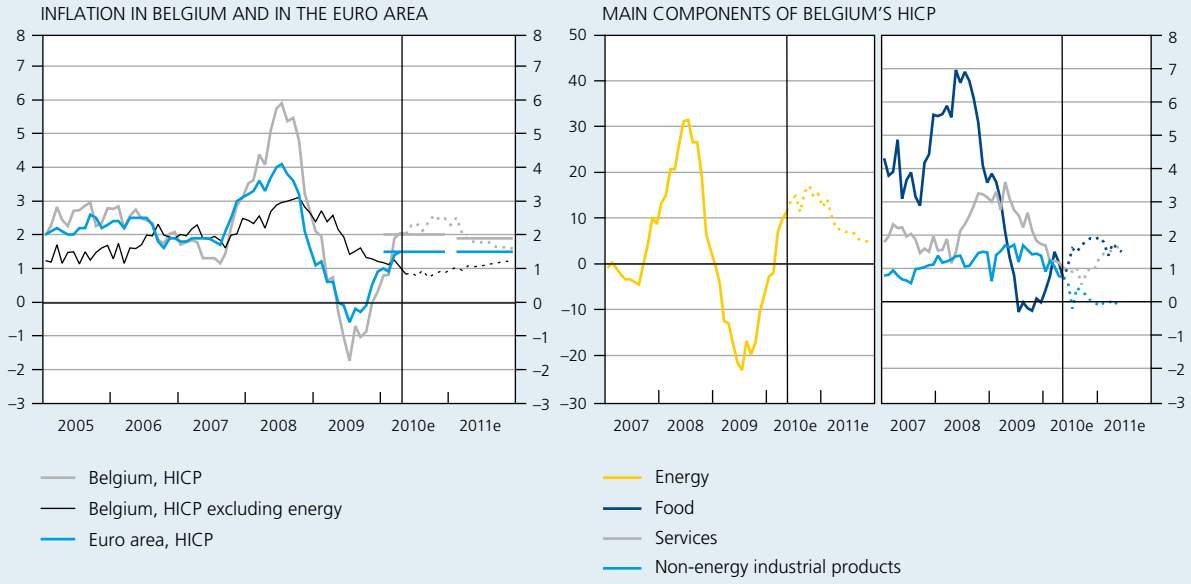
In contrast, inflation excluding energy is expected to slow significantly, dropping from an annual average of 1.9 p.c. in 2009 to 0.9 p.c. in 2010. This fall, which had begun during 2009, is attributable to both non-energy industrial goods and to services. However, inflation is expected to edge upwards at the end of the year and in 2011, owing to the gradual improvement in economic activity, but also to the effects of the euro depreciation.

In particular, after a 6.6 p.c. fall in 2009, the projected rise in the import deflator of 2.8 p.c. in 2010 and 2.4 p.c. in the following year would lead to a steady increase in the prices of non-energy industrial goods. The movement in the price of services is largely affected by the pattern of unit labour costs in the private sector. After increasing by 4.6 p.c. in 2009, those prices are set to remain virtually stable in 2010, before a modest 0.8 p.c. increase in 2011.

The rapid rise in unit labour costs in 2009 and their marked slowdown in 2010 are due predominantly to the cyclical profile of labour productivity. While firms did not cut the volume of labour entirely in line with the drop in output in 2009 – giving rise to a marked 1.1 p.c. decline in hourly productivity – they are likely to take advantage of the revival in activity to improve efficiency in their use of the factor labour. Thus, hourly labour productivity is expected to increase by around 1 p.c. in 2010 and in

CHART 5 INFLATION

(HICP, percentage changes compared to the corresponding period of the previous year)



Sources: EC, NBB.

TABLE 5 PRICE AND COST INDICATORS

(percentage changes compared to the previous year, unless otherwise stated)

	2007	2008	2009	2010 e	2011 e
HICP	1.8	4.5	0.0	2.0	1.9
Health index	1.8	4.2	0.6	1.3	1.7
Underlying inflation (1)	1.9	2.7	2.0	0.8	1.0
GDP deflator	2.3	1.8	0.9	1.6	1.5
Labour costs in the private sector:					
Labour costs per hour worked	3.4	3.4	3.4	0.9	1.7
Employers' social security contributions (2)	0.5	–0.3	0.6	0.6	0.1
Gross wages	2.9	3.7	2.8	0.3	1.6
of which indexation	1.6	2.9	2.5	0.5	1.8
Labour productivity (3)	1.3	–0.1	–1.1	1.0	0.9
Unit labour costs	2.0	3.4	4.6	–0.1	0.8

Sources: EC; FPS Employment, Labour and Social Dialogue; NAI; NBB.
(1) Measured by the HICP excluding unprocessed food and energy.
(2) Contribution to the change in labour costs following adjustments to the implicit contribution rates, percentage points.
(3) Value added in volume per hour worked by employees and self-employed persons.

2011, though that is slightly below the average rise of 1.2 p.c. recorded from 2004 to 2008.

Hourly labour costs in the private sector are also likely to contribute to the strong deceleration in unit labour costs between 2009 and 2010, their increase slowing from 3.4 p.c. to 0.9 p.c. That corresponds essentially to the expected impact of indexation, which has taken time to reflect the higher inflation measured by the health index in 2008, followed by the marked fall in the next year. Leaving aside indexation, the rise in labour costs in real terms will be limited since the central agreement only provides for the possibility of granting one-off bonuses of 125 euro in 2009 and 250 euro in 2010. Moreover, two effects – both connected with the sharp deterioration in the economic climate – have worked in opposing directions in 2009 and 2010. Variable remuneration was reduced owing to the decline in corporate results, while the rising job losses led to an increase in redundancy payments made by employers.

The assumption adopted for 2011 of a 1.7 p.c. increase in hourly labour costs in the private sector corresponds essentially to the expected effect of indexation. This is a technical assumption which does not in any way prejudge the outcome of the forthcoming wage negotiations for the period 2011-2012.

5. Public finances

5.1 Overall balance

The economic and financial crisis caused a surge in budget deficits in almost all the advanced economies. The same applied to Belgium since, according to the provisional data published by the NAI in March 2010, Belgium's public deficit came to 6 p.c. of GDP in 2009. In the macroeconomic context described above, the general government accounts are likely to record further deficits in 2010 and in 2011, of 5 and 5.3 p.c. of GDP respectively.

The improvement in the financing balance in 2010 is due largely to the disappearance of the non-recurrent factors which had adversely affected public finances in 2009. In that year, the federal government had speeded up the personal income tax assessments, significantly augmenting the amount of payments in favour of households. Moreover, primary expenditure had also been inflated in 2009 following two court rulings ordering the Belgian government to repay substantial amounts of taxes wrongly levied in the past from certain companies receiving dividends from subsidiaries, on the one hand, and from married unemployed persons, on the other.

Interest charges are projected to remain unchanged overall throughout the projection period, as a result of the low level of interest rates. Although the public debt

TABLE 6 GENERAL GOVERNMENT ACCOUNTS[1]
(percentages of GDP)

	2007	2008	2009	2010 e	2011 e
Revenues	48.2	48.8	48.3	48.8	49.0
Fiscal and parafiscal revenue	43.3	43.7	43.0	43.3	43.2
Other	4.9	5.1	5.3	5.5	5.8
Primary expenditure	44.5	46.2	50.6	50.2	50.7
Primary balance	3.6	2.6	–2.3	–1.4	–1.7
Interest charges	3.8	3.8	3.7	3.6	3.7
Financing requirement (–) or capacity	–0.2	–1.2	–6.0	–5.0	–5.3
p.m. Effect of non-recurrent factors	*–0.1*	*0.0*	*–0.9*	*0.0*	*0.0*

Sources: NAI, NBB.
(1) According to the methodology used in the excessive deficit procedure.

would increase, the impact of that growth on interest charges would be almost totally neutralised by the fall in the implicit interest rate on the public debt.

It should be noted that these projections take account only of budgetary measures which have already been announced and specified in sufficient detail. They disregard the effect of any measures yet to be taken, particularly when the 2011 budgets are drawn up. The January 2010 stability programme provides for a deficit of 4.8 p.c. of GDP in 2010, which is to be cut to 4.1 p.c. of GDP in 2011 and 3 p.c. of GDP in 2012, and a return to a balanced budget in 2015.

5.2 Revenue

After contracting in 2009, public revenues expressed as a percentage of GDP are projected to rise by 0.6 percentage point in 2010 and 0.2 percentage point in 2011.

However, the expected decline in the share of labour incomes – which are subject to relatively high fiscal pressure – will have a negative impact on the movement in fiscal and parafiscal revenues as a ratio of GDP during the projection period. Conversely, the revenue ratio is being inflated in 2010 by the effect of the disappearance of the negative impact on revenues in 2009 resulting from the acceleration of the personal income tax assessments. The rise in the revenue ratio predicted for 2010 is also due to structural measures. For instance, the levies on labour will increase as a result of the smaller lump-sum reduction granted by the Flemish Region to its residents, but that effect will be partly offset by the impact of the granting of tax-favourable wage increases totalling a maximum of 250 euro per person, under the central agreement, and the impact of the 2005 reform of the system of deducting mortgage charges on owner-occupied homes. In addition, taxes on companies will be increased by the imposition of tighter conditions for claiming the allowance for finally taxed income, by adapting tax deduction rates for

TABLE 7 STRUCTURAL MEASURES CONCERNING PUBLIC REVENUES
(millions of euro, unless otherwise stated; changes compared to the previous year)

	2010 e	2011 e
Taxes	627	–27
of which:		
Tax reduction granted by the Flemish Region[1]	432	–150
Deduction of mortgage charges for own homes	–208	0
Tax-favourable wage increases	–113	0
Corporation tax	403	0
Excise duty on petrol and diesel	229	120
Reduction in VAT in hotel and catering trade	–255	0
Social security contributions	–70	0
Total	**557**	**–27**
p.m. Percentages of GDP	*0.2*	*0.0*

Sources: Budget documents, FPS Finance, NSSO.
(1) Part of the tax reduction granted by the Flemish Region to self-employed persons on income in 2009 will not be taken into account until the time of the tax assessment, namely in 2011.

company car expenses and fuel costs and by the limit on the rate used to calculate risk capital allowance. In regard to the taxes on goods and services, the revenues generated by the increase in excise duty on diesel will be offset by the cut in VAT on meals in hotels and restaurants, down from 21 to 12 p.c. The measures already approved will have little impact on fiscal and parafiscal revenues in 2011.

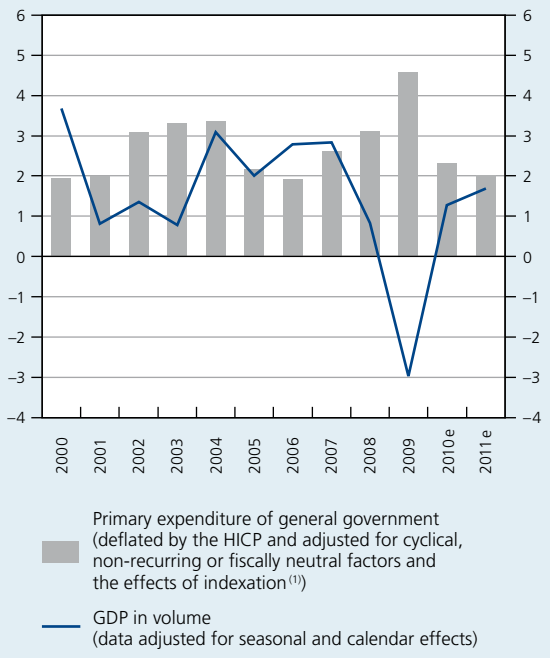
During the projection period, the other revenues will be driven up by higher payments made by financial institutions supported by the government during the financial crisis, and by the new levy relating to the deposit protection system.

5.3 Primary expenditure

Primary expenditure increased sharply in 2009, expressed as a percentage of a GDP which had suddenly slumped. That expenditure ratio should fall slightly in 2010, but is likely to rise again in 2011. In volume terms, primary expenditure is expected to remain virtually stable in 2010 and should expand by 2.2 p.c. in 2011. This year, the movement in that expenditure will benefit from the absence of indexation of wages and social benefits and from court decisions which drove up expenditure substantially in 2009. Conversely, it will feel the impact of the increase in unemployment expenditure associated with the deterioration in economic activity. Adjusted for these non-recurring or cyclical factors and the effects of indexation, primary expenditure is projected to grow by 2.3 and 2 p.c. respectively in 2010 and 2011, or still well ahead of trend GDP.

CHART 6 PRIMARY EXPENDITURE OF GENERAL GOVERNMENT AND GDP

(percentage changes compared to the previous year)



Sources : NAI, FPS Finance, NBB.

(1) Effect due to the gap between actual indexation of public sector pay and social benefits, on the one hand, and the rise in the HICP on the other.

The 2010 increase in expenditure – adjusted for those various factors – is the outcome of divergent movements within the general government sub-sectors. At federal government level, the increase will be smaller than in the three preceding years, while remaining substantial. One of the factors driving that growth, notably the expansion of certain employment promotion measures such as the general reduction in payroll tax, recorded as a subsidy in accordance with the ESA 95, will increase primary expenditure to an even greater extent than in 2009. At the same time, the increase in social security expenditure is set to slow down gradually, reverting to a rate below the average for the past ten years. The main categories of social expenditure are projected to rise by less than in 2009, but some of them, such as health care and unemployment benefits, will continue to grow strongly. Some of them will still be influenced by a set of measures concerning adjustment in line with prosperity. In the case of the Communities and Regions and the local authorities, expenditure will grow at a fairly modest pace.

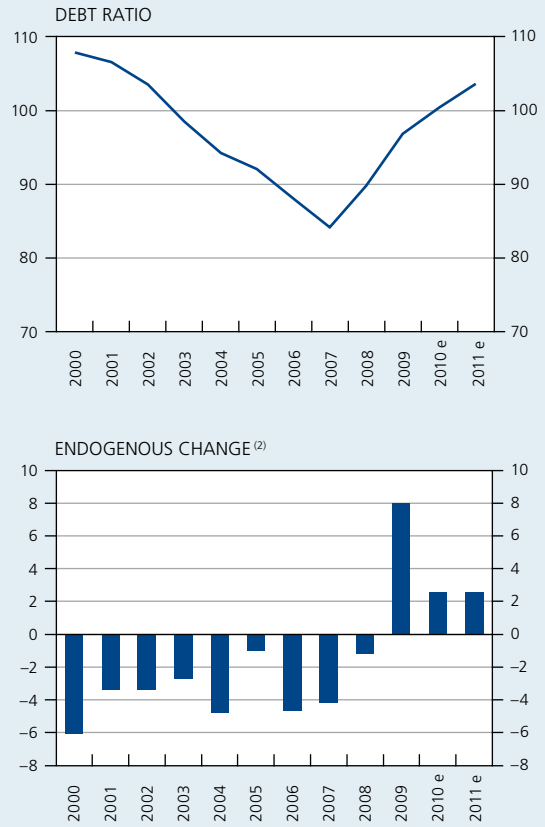
In 2011, the adjusted real growth of federal government expenditure is expected to be relatively muted, owing in particular to the virtual stabilisation of the amounts relating to the measures to reduce the payroll tax. The projections for social security expenditure take account of a set of measures to increase social benefits ; these will augment expenditure, although to a lesser degree than in 2010. In contrast to these first two sub-sectors, the Communities and Regions do not yet have a budget for 2011, so that the projections are based largely on past developments. Local authority expenditure is likely to expand relatively strongly as a result of substantial investments in the year preceding the local elections.

5.4 Debt

Between 1993 – when the public debt had peaked at 134.1 p.c. of GDP – and 2007, the general government debt ratio had declined continuously at an annual average rate of 3.6 percentage points, mainly as a result of

CHART 7 PUBLIC DEBT [1]

(percentages of GDP)



(1) Consolidated gross debt of general government.
(2) The endogenous change in the public debt reflects the debt dynamics, leaving aside the impact of operations which influence the debt without affecting the overall balance.

endogenous factors such as the primary surplus, the reduction in the implicit interest rate, and the economic growth rate. At the end of 2007, the debt ratio stood at 84.2 p.c. of GDP.

In 2008, the capital injections and loans granted to financial institutions during the crisis in the financial sector caused a surge in the general government debt. By the end of that year, it had already reached 89.8 p.c. of GDP. It continued to rise in the following year, and by the end of 2009 the Belgian public debt came to 96.8 p.c. of GDP. That 7 percentage point increase was due solely to endogenous factors, under the combined effect of the decline in nominal GDP and the substantial deterioration in the primary surplus.

In 2010 and 2011, the endogenous increase in the debt is likely to continue, but at a slower rate than in 2009, as economic activity regains momentum and the primary balance improves somewhat. In 2010, with due regard for the loans granted by the federal government to Greece in the context of the debt crisis afflicting that country, the debt ratio is expected to rise to a little over 100 p.c. of GDP. In 2011, it is projected to increase further, to 103.1 p.c. of GDP.

6. Risk factor assessment

Like the euro area, and the global economy in general, Belgium came out of the recession phase in mid 2009. Since then, the recovery has been slightly stronger than expected, owing to the dynamism of the emerging

TABLE 8 COMPARISON OF THE FORECASTS FOR BELGIUM

(percentage changes compared to the previous year, unless otherwise stated)

	GDP in volume		Inflation [1]		Budget balance [2]		Date of publication
	2010	2011	2010	2011	2010	2011	
NBB – Spring 2010	1.3	1.7	2.0	1.9	–5.0	–5.3	June 2010
p.m. Autumn 2009	*1.0*	–	*1.6*	–	*–5.4*	–	*December 2009*
Federal Planning Bureau (FPB)	1.4	1.7	1.8	1.7	–4.7	–5.1	May 2010
IMF	1.2	1.3	1.6	1.5	–5.1	–4.4	April 2010
EC	1.3	1.6	1.6	1.6	–5.0	–5.0	May 2010
OECD	1.4	1.9	1.8	1.4	–4.9	–4.2	May 2010
p.m. Actual figures 2009	*–3.0*		*0.0*		*–6.0*		

(1) HICP, except FPB : final private consumption deflator.
(2) Percentages of GDP.

countries and the impact of fiscal and monetary support measures; that explains the small upward revision in GDP growth predicted for 2010, from 1 p.c. in the December 2009 forecasting exercise to 1.3 p.c. in the new exercise. Thus, the Bank's growth projections are close to those of other forecasters for both 2010 and 2011. The Bank puts inflation at a higher figure, on account of the recent rise in oil prices and the depreciation of the euro. In regard to the general government budget balance, the deficit of 5.3 p.c. of GDP in 2011 predicted by the Bank is higher than the forecasts of the IMF or the OECD, as those two institutions implicitly take account of additional consolidation measures beyond those which governments have already implemented.

While all forecasters expect the recovery to continue, the advanced economies will nevertheless still feel the impact of the economic and financial crisis. The baseline scenario assumed for a number of months now suggests that a slow recovery of domestic demand, and hence activity, remains the most likely outcome, owing to the adjustments which the various sectors will need to make. Excess production capacity still persists, in both capital and labour, so that investment and employment will take a while yet to recover. In addition, financial institutions need to continue reorganising their activities and balance sheets, and that could curb lending.

This scenario of a slow recovery applies to most of the European economies, and is therefore not specific to Belgium. Conversely, in the absence of significant imbalances at the level of foreign trade, domestic sector debt or the property market, the scale of the recession in 2008-2009 was slightly smaller in Belgium than in the euro area, and Belgian growth will be slightly higher in 2010 and 2011. Although the balance of current transactions for the Belgian economy remains below the figure for the early 2000s, it is still decidedly positive; according to the forecasts, it will amount to 1.8 and 1.7 p.c. of GDP in 2010 and 2011 respectively. Over time, this positive balance has led to the formation of net financial assets in relation to the rest of the world. Owing to more prudent practices than in other countries, particularly in regard to mortgage loans, the household debt ratio is also lower than the euro area average, while the financial structure of firms has strengthened. However, taking account of its economic and financial openness, Belgium is unlikely to escape any risks which materialise in other countries.

In that regard, the serious tensions on the government bond markets since April 2010 reflect the difficulties surrounding the exit from the crisis for public finances. While the rising deficits and public debt in most countries are an inevitable consequence of government intervention to support the financial sector and the economy, they threaten the long-term sustainability of public finances. In that context, though the retrenchment measures announced in a growing number of countries could certainly hamper the recovery for a time, while it remains fragile, the absence of any clear prospect of consolidation would trigger a rise in interest rates, as illustrated recently by the case of Greece, and could prompt households to raise their savings ratio as a precaution in the face of uncertainty over their future income.

Very considerable uncertainty therefore persists over the economic outlook for the euro area and for Belgium, and the risks – if they materialise – would tend to dampen the growth of activity and demand. That would have the effect of curbing inflation, but conversely, the generalisation of the upward effect generated by the energy component or the euro depreciation could push inflation above the level assumed in the projections. It is therefore necessary to maintain the ability of the Belgian economy to take advantage of the recovery and to cope with the accompanying fits and starts by establishing a stable macroeconomic framework. Such a framework needs to be based, in particular, on a sustainable long-term path for public finances and moderate movements in wages, in line with developments in the main trading partners. At the same time, it is vital to strengthen the growth potential of productivity and employment, not only to boost the economy's resistance to cyclical shocks, but also in preparation for the challenges ahead in the longer term.

Annex

PROJECTIONS FOR THE BELGIAN ECONOMY: SUMMARY OF THE MAIN RESULTS

(percentage changes compared to the previous year, unless otherwise stated)

	2007	2008	2009	2010 e	2011 e
Growth (calendar adjusted data)					
GDP in volume	2.8	0.8	–3.0	1.3	1.7
Contributions to growth:					
Domestic expenditure, excluding change in stocks	2.6	2.1	–1.5	0.4	1.2
Net exports of goods and services	0.2	–1.0	0.0	1.0	0.4
Change in stocks	0.1	–0.2	–1.5	–0.1	0.1
Prices and costs					
Harmonised index of consumer prices	1.8	4.5	0.0	2.0	1.9
Health index	1.8	4.2	0.6	1.3	1.7
GDP deflator	2.3	1.8	0.9	1.6	1.5
Terms of trade	0.3	–2.2	2.6	0.3	–0.5
Unit labour costs in the private sector	2.0	3.4	4.6	–0.1	0.8
Hourly labour costs in the private sector	3.4	3.4	3.4	0.9	1.7
Hourly productivity in the private sector	1.3	–0.1	–1.1	1.0	0.9
Labour market					
Domestic employment (annual average change in thousands of units)	70.3	82.1	–16.4	–14.6	–1.3
p.m. Change during the year, in thousands of persons [1]	*80.9*	*64.2*	*–38.5*	*–12.9*	*8.2*
Total volume of labour [2]	1.9	1.3	–1.8	0.1	0.6
Harmonised unemployment rate [3] (p.c. of the labour force)	7.5	7.0	8.0	8.3	8.8
Incomes					
Real disposable income of individuals	2.0	1.3	3.8	–1.1	1.2
Savings ratio of individuals (p.c. of disposable income)	16.2	16.6	21.0	19.7	20.0
Public finances [4]					
Overall balance (p.c. of GDP)	–0.2	–1.2	–6.0	–5.0	–5.3
Primary balance (p.c. of GDP)	3.6	2.6	–2.3	–1.4	–1.7
Public debt (p.c. of GDP)	84.2	89.8	96.8	100.2	103.1
Current account (p.c. of GDP according to the balance of payments)	**1.6**	**–2.9**	**0.5**	**1.8**	**1.7**

Sources: EC, DGSEI, NAI, NBB.

(1) Difference between the fourth quarter of the year concerned and the fourth quarter of the previous year.

(2) Total number of hours worked in the economy.

(3) Non calendar adjusted data.

(4) According to the methodology used in the excessive deficit procedure (EDP).

Belgium's position in world trade

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Introduction

The central role played by international trade in goods and services in the operation of the developed economies has been strongly highlighted by the economic crisis of 2008-2009. At the end of 2008 and beginning of 2009, paralysis of a part of world trade led to the very rapid spread, throughout the world, of an economic recession without precedent since the Second World War. In Belgium, exports and imports of goods both declined by 20 p.c. in volume terms between mid 2008 and mid 2009, in parallel with a decrease of comparable scope in industrial production. Conversely, the recovery in activity in Belgium will not be started up in a sustainable manner until external trade has become more robust in the various economic zones, and only on the condition that firms are in a position to respond to this resurgence in demand.

More widely, the advanced economies including Belgium have had to face up to a profound transformation of the international environment over the last two decades. Affected by a combination of institutional, financial and technological factors, economies have become far more interlinked as regards not only international trade in goods and services, but also movements of capital, exchanges of technology and migration flows.

The causes and consequences of the accelerated globalisation of the economy during the last two decades have already been widely documented[1]. However, two elements can be picked out in order to assess their effects on the Belgian economy, namely the modification of the overall organisation of production processes and the very rapidly growing importance of new economic centres.

On the one hand, the movement to liberalise commercial and financial trade in the majority of economic zones, the reduction of transport costs and the progress of information technologies have given rise to a marked tendency for the production chain to be fragmented. Influenced notably by multinational enterprises, the various stages of production – from the initial development, through to production, and then final distribution – are increasingly broadly spread between different locations according to the advantages that each of these offers in terms of efficiency. This organisation of production is shown by a more rapid increase in external trade than in global GDP. It also leads to a higher level of imports in production, in particular for intermediate goods, as well as to a growing importance of intra-branch or intra-firm trade. Overall, this tendency leads to a raising of productivity. By offering firms in the advanced economies the possibility of benefiting from lower-cost inputs, it allows them to strengthen their competitiveness and to consolidate their position by concentrating on activities with higher value added, for which they have a comparative advantage. However, this requires reallocating resources within the enterprise and in the economy on the one hand, and profiting from the demand which is building up on the new markets on the other.

The current phase of globalisation is also characterised by the rapid emergence of new economic centres,

(1) Cf. for example OECD (2007).

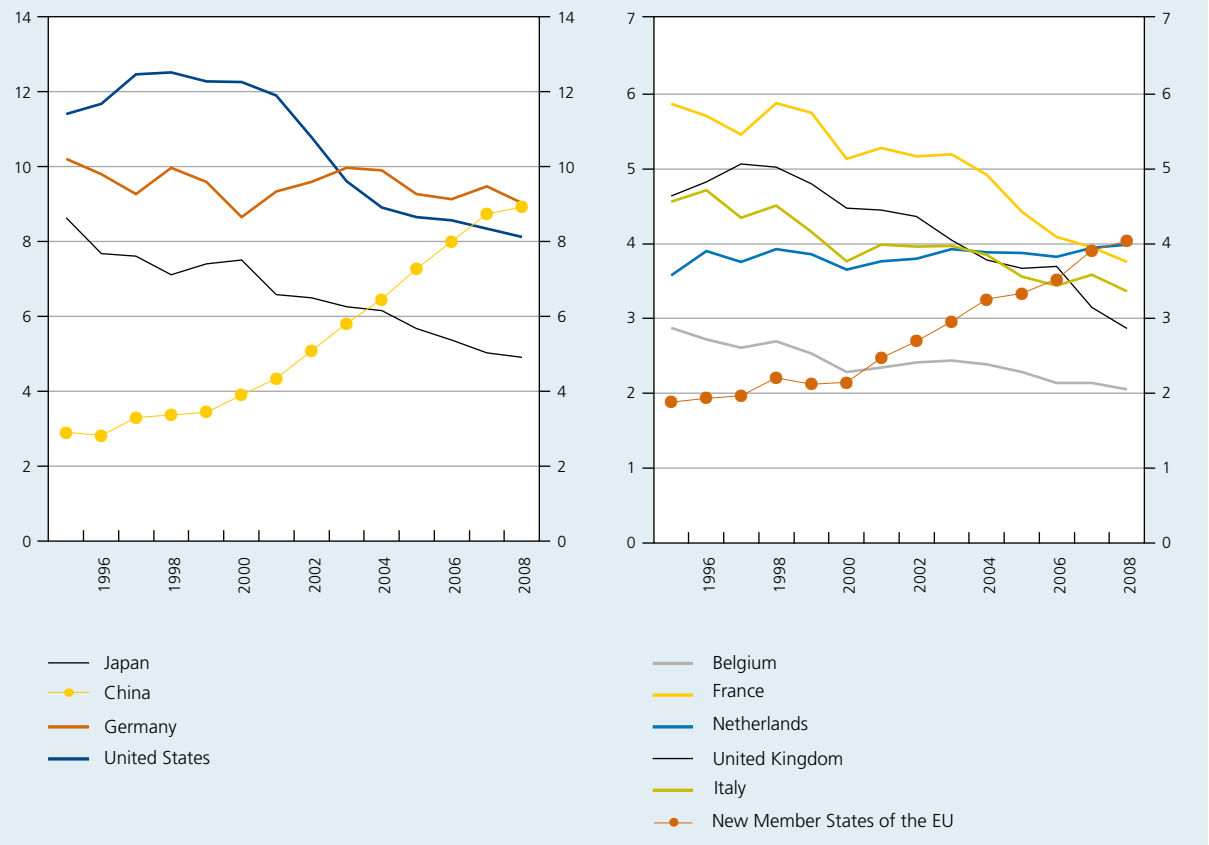
whether they are countries of great size – the BRIC economies – or countries near at hand, such as the economies of Central and Eastern Europe. These countries, in particular China, hold an increasingly large share of global production and over time have become essential trading partners for the more advanced economies, both as outlet markets and as suppliers of consumer goods, intermediate goods, and increasingly equipment goods. In this context, the emerging economies are equipped with abundant reserves of labour, but also, in step with their economic progress, increasingly sophisticated equipment and technology. The participation of these new stakeholders in international trade thus has the effect of progressively modifying the balance of comparative advantages. With regard to the countries that have long been active in external trade, which include Belgium, this tends to undermine the relative position in terms of labour-intensive or even capital-intensive production and in contrast to reinforce production which incorporates a greater knowledge content.

Therefore, following the example of individual firms, the various economies need to display the capacity to adapt in order to exploit their comparative advantages to the best effect and profit from the dynamism of the global economy.

Given this perspective, it is therefore appropriate to widen the view of competitiveness beyond the aspects of price and cost, to a wide set of factors of a more qualitative nature. It is true that price competitiveness, associated with production costs – labour costs, return on capital and costs of intermediate inputs – remains essential in the positioning of the economy in relation to those partners having structural characteristics comparable to Belgium. These elements are notably taken into account in the choice of location for production units within multinational enterprises. Over and above this, more intangible factors determine the capacity of the economy to offer goods and services which are distinguished, for example, by their quality or their innovative nature, so as to respond

CHART 1 IMPORTANCE OF EXPORTS BY REGION OR BY COUNTRY IN WORLD TRADE

(world exports of goods by value, in percent)



Sources : EC, NAI, UNCTAD.

to the changes in overall demand. Amongst these factors can be found the quality of the physical and human capital, the innovation efforts and the operation of the markets.

In order to assess how Belgium is positioned in the face of a world environment in transition, this article is divided into five sections. The first section presents the overall results observed since 1995. The following sections relate to four aspects which determine the external competitiveness of the economy, namely the importance of price and cost competitiveness; the structure of exports; the characteristics and the demography of exporting firms; and innovation.

1. Belgium's position in the globalised economy

The growing participation of the emerging economies in world trade, both as exporters and importers, has provided strong support for its growth. The volume of international trade expanded by 5.8 p.c. per year over the period extending from 1995 to 2008, a growth rate which is twice as fast as that of GDP. In the same context, the advanced economies have generally experienced a decrease in their share of the market. This phenomenon is endogenous in nature, reflecting the recovery of the emerging economies. However, significant differences can be seen between the advanced economies. Between 1995 and 2008, the cumulative share of the United States, Japan and the EU15 in world trade in goods dropped by 25 p.c. in relative terms, falling back from 61 p.c. of world trade in goods in 1995 to 46 p.c. in 2008. The decline has been particularly pronounced for Japan whose share fell from 8.6 p.c. to 4.9 p.c., representing a decrease of more than 40 p.c. The rate of decrease reached nearly 30 p.c. for the United States and 20 p.c. for the EU15. During this period, China tripled its share of world trade, reaching 8.9 p.c. in 2008, and the new Member States of the EU doubled theirs, to 4 p.c.

Calculated on the basis of statistics drawn up according to the so-called "national" concept of foreign trade, Belgium's exports represented 2.9 p.c. of world trade in 1995. This share fell to 2.1 p.c. in 2008, which is a decline of nearly 30 p.c. A large number of other EU15 countries recorded a decrease on the same scale. Amongst the neighbouring countries, however, the decline over the period as a whole was proportionally lower in Germany whilst the Netherlands' share increased slightly, in the latter case probably owing partly to the "port effect" associated with the port of Rotterdam [1].

The results for Belgium can usefully be compared to those for twelve European countries, to the extent that the latter have levels of development and structures that are fairly close, they form part of the same customs zone and the majority share the same currency. They therefore display the same general conditions as Belgium in the face of the effects of globalisation. This comparison reveals that the growth in Belgium's exports between 1995 and 2008 remained behind the reference zone, at a level of around 1 percentage point per year, with an annual average growth in nominal exports of goods of 5.4 p.c. as against 6.5 p.c. on average for the countries under consideration. This result is certainly better than that of France and the United Kingdom, but significantly lower than that of the Netherlands, Germany, Austria and even Spain and Ireland.

The differences in the pace at which exports are expanding may result either from the dynamism of the underlying markets served or from the development of market shares. In this instance, the development of "relevant markets" comprises the average growth in imports of partners, weighted according to their importance in the exports

TABLE 1 COMPARISON OF DEVELOPMENT OF EXPORTS, RELEVANT MARKETS AND MARKET SHARES

(average annual change in percent, goods by value, unless stated otherwise, 1995-2008)

	Exports	Relevant markets [1]	Market shares
Belgium	**5.4**	**8.1**	**–2.5**
Reference zone [2]	6.5	8.4	–1.7
Netherlands	9.1	7.7	1.3
Ireland	7.3	7.3	0.0
Spain	7.5	7.8	–0.3
Austria	8.2	8.7	–0.4
Germany	7.2	8.9	–1.6
Finland	5.9	9.3	–3.1
Sweden	5.6	8.3	–2.5
Portugal	6.2	8.2	–1.9
Greece	5.6	9.2	–3.2
Italy	5.7	8.7	–2.8
France	4.5	8.3	–3.5
United Kingdom	4.3	8.2	–3.6

Sources: EC, IMF, NAI, OECD, UNCTAD.

(1) Average growth rate of trading partners' imports, weighted by their importance in the exports of the country in question.

(2) Non-weighted average of the 12 countries.

(1) This "port effect" is largely corrected in the statistics for Belgium drawn up according to the national concept, which excludes transactions attributable to non-residents.

of the country in question. The relationship between the observed development in exports and that of the relevant markets is a measure of performance in terms of market share. With regard to trade in goods, the losses observed for Belgium were, in value terms, 0.7 percentage points per year higher than the average for the reference zone. As indicated in Box 1, the calculation of market shares can be carried out on the basis of other variables, but this makes little difference to Belgium's position in the hierarchy of results.

Box 1 – Various indicators of relevant markets and market shares

Indicators of relevant markets are used widely in the analysis of export performance, notably by the international institutions (OECD, EC) but also – in Belgium – by the Federal Planning Bureau, the Central Economic Council and the Bank, in the context of exercises involving forecasting and the analysis of market shares. The principle of these indicators is always the same : they involve calculating an index that reflects the weighted development in trading partners' imports by making use of weightings that reflect the structure of exports from the countries in question. The development of the market shares of each country is then obtained by relating the development of exports to the demand coming from the relevant markets.

However, various measures are possible statistically. Trade can be considered in nominal terms or by volume, by taking account of goods alone or goods and services. Apart from these measures, it is permissible to consider the geographical partners and/or the products traded in order to assess the growth in the markets. From a purely methodological viewpoint, taking account of weightings that are either fixed or variable over time, or of a more or less complete coverage by geographical area (or by product) of the trading partners, similarly entails differences between measures of the markets.

In the context of international comparisons, the measure of market share development that looks at goods and services by volume is the most frequently used. In fact, the availability of international statistics that are regularly updated in national accounts, as well as the neutralisation of price effects, make this measure easy to use and interpret. However, these measures by volume are sensitive to the way in which price effects are compiled in the statistics, and in this regard they may suffer from a lack of harmonisation between countries. Over and above a classical overall macroeconomic study of export performance, it is also of interest to have a sufficiently detailed indicator available that allows fine-scale analysis of performance. This applies particularly where the issue is to determine whether products or categories of products can explain the differences in performance between comparable countries subject to the same changes. In this context, the use of indicators by value that measure performance on the goods markets, and thus allow a level of fine detail on the basis of foreign trade statistics, is indispensable.

The table below presents the development for market shares according to whether goods or goods and services are considered, as well as the variables in nominal terms and by volume. Even though price trends in particular may occasionally have significant effects on the quantified results, it appears that the conclusions drawn remain verified for any used indicator. On average, over the period from 1995 to 2008 :

- Belgium's external performance in terms of market shares was lower than the average for the reference zone ;
- the Netherlands, Ireland, Spain and Austria recorded gains in market shares or at least performance higher than the average for the reference zone ;
- Portugal, Italy, France and the United Kingdom, like Belgium, recorded mixed performance over the period in question ;
- Germany, Finland, Sweden and Greece experienced more varied performance according to the choice of indicator, but overall in line with that of the reference zone.

COMPARISON OF EXPORT PERFORMANCE

(average annual change in percent, 1995-2008)

	Biens		Biens et services		
	Goods	Volume	Goods	Volume	Volume according to OECD[2]
Belgium	**–2.5**	**–2.6**	**–1.7**	**–1.4**	**–1.7**
Reference zone[1]	–1.7	1.0	–1.1	–0.3	–0.6
Netherlands	1.3	2.1	–0.6	–0.2	–0.3
Ireland	0.0	2.0	3.7	3.4	3.4
Spain	–0.3	0.2	0.8	0.2	–0.1
Austria	–0.4	1.4	–0.6	0.2	0.0
Germany	–1.6	–0.7	–0.9	1.0	0.7
Finland	–3.1	–2.0	–1.9	1.1	0.3
Sweden	–2.5	–1.7	–1.4	0.0	–0.2
Greece	–3.2	–2.7	0.2	–0.2	–0.4
Portugal	–1.9	–0.6	–1.4	–1.7	–1.9
Italy	–2.8	–3.2	–2.5	–4.1	–4.5
France	–3.5	–2.5	–2.8	–1.7	–2.0
United Kingdom	–3.6	–5.1	–2.0	–1.7	–2.0

Sources: EC, IMF, NAI, OECD, UNCTAD.

(1) Non-weighted average of the 12 countries.

(2) Indicators of export performance according to the Economic Perspectives of the OECD, November 2009.

2. Price and cost competitiveness

This section is devoted to assessing the role of price and cost effects in explaining Belgium's export performance and positioning it with respect to other European countries. The approach followed consists firstly in determining how far the development of market shares by volume for goods and services is explained by relative movements in the export prices of the country in question in relation to the prices of competitors, or indeed by other factors which would stem from structural elements of non-price competitiveness. The mechanism for setting export prices is then examined in more detail in a second stage.

This exercise is based on an econometric analysis using quarterly data from 1995 to 2008 in which simple specifications are applied to Belgium and a set of European countries. As far as possible, these comprise the same countries as those making up the reference zone in sections 1 and 3 of this article. However, some limitations in the availability of data have restricted the list of countries considered. The data originate from the national accounts statistics and therefore relate to trade in goods and services. They come from the databases of the *Economic Perspectives of the OECD* except for those for Belgium, which are taken directly from the NAI.

The following equation[1] makes it possible to estimate export performance. For each country, the development by volume of market shares, that is to say the relationship between movements in exports and outlets, is a function of both the development in relative prices, namely the relationship between the export prices and the weighted average of competitors' prices, and a structural variable designated "trend". This study focuses on the structural features of this relationship. In this respect, only the equilibrium equation is estimated, without taking into account the short-term dynamics:

(1) The equations were estimated by means of natural logarithms, so that the coefficient applied to the relative prices can be considered to be the price elasticity.

$$ln(XTR_i / WDR_i) = \alpha_1.ln(RP_i) + \alpha_2.trend + constant + \varepsilon$$

where: XTR_i: exports by volume of country$_i$;
WDR_i: indicator of the relevant export markets for country$_i$;
RP_i: indicator of the relative export prices of country$_i$, related to the prices of competitors.

In theory, more rapid growth in the export prices of one country in relation to those of competitors tends to weigh on the development of exports and therefore reduce market shares, so that coefficient α_1 of the variable for the relative prices should be negative. If the development of market shares depended solely on relative prices, and in the event of neutral development of those prices, exports by volume would follow the movements in the outlets. However, this is seldom the case, so the possibility of structural losses or gains in market shares is introduced into the analysis by means of a trend variable. This synthesises the presence of possible elements not linked to prices which would also have an impact on the connection between the development of exports and that of outlets.

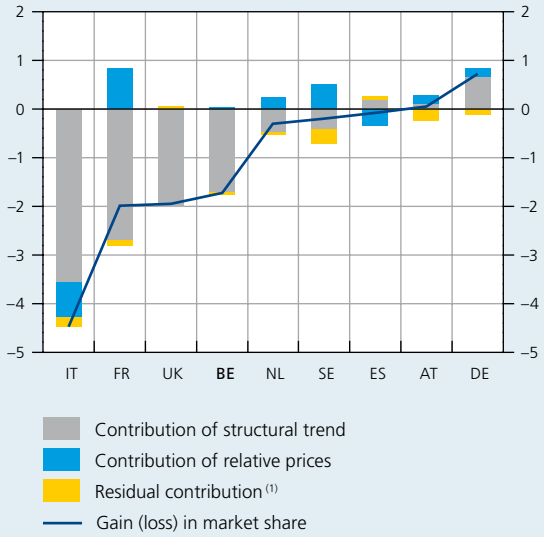
It appears in general, on the basis of the results obtained, that the contribution made by relative export prices is fairly limited. Belgium occupies a neutral position in this regard; the average total loss of market shares, of some 1.7 p.c. per year over the period extending from the first quarter of 1995 to the fourth quarter of 2008, is therefore almost entirely attributable to the trend variable. In the neighbouring countries (Germany, France and the Netherlands), the development of relative prices is found to make a slightly positive contribution.

The contribution made by the trend variable is in general, fairly clearly negative. Amongst the countries examined, only the Netherlands and Austria, where the contributions are moderately positive, and Germany, which benefits from a positive contribution of 0.7 percentage points on average per year, showed an improvement in their structural development in terms of market share during the period 1995-2008. All the other countries posted structural losses in market shares. These were most marked in Italy, whilst Belgium, with a structural loss of 1.7 percentage points per year on average, joins France and the United Kingdom in forming a group of countries whose annual average losses in market shares unrelated to relative prices fall within a range extending from –1.5 to –2.5 percentage points.

The results table for the estimation shows that the relatively small contribution made by the variables

CHART 2 DETERMINANTS OF THE DEVELOPMENT OF MARKET SHARES

(average annual contributions, percentage points, goods and services by volume)



Source: Own calculations, based on data from the OECD and the NAI.

(1) Apart from the contribution made by the relative prices and the structural trend, there is a small residual contribution which is an inverse function of the stability of the equation.

associated with the relative prices can be explained either by a small correlation between the development of relative prices and that of market shares – in which case the value of the coefficient of the relative prices tends towards zero, as for the United Kingdom, Belgium and Germany for example – or by a small difference between the development of their own prices and that of their competitors (United Kingdom, United States and Belgium), although these two reasons may both apply. Amongst the neighbouring countries, France (–0.83) and to a lesser extent the Netherlands (–0.41) display a relatively high level of price elasticity, an aspect which allows them to significantly improve their export performances by reducing their relative prices. During the period studied, Germany posted a gap of –1.8 percentage points between the development of its own export prices and the development of prices in competitor countries. Thus, notwithstanding a low level of price elasticity, that country recorded a positive contribution from prices.

All in all, the development of relative export prices only provides a limited explanation of overall performance on external markets. This would tend to indicate that the prices applied on the international markets are, to

TABLE 2 RESULTS OF THE ESTIMATION OF DETERMINANTS OF MARKET SHARES BY VOLUME

(period extending from the first quarter of 1995 to the fourth quarter of 2008)

	Coefficient of relative export prices	*p.m. Average annual change in relative export prices*[1] *(percentage change)*	Annual structural trend[2] (contribution in percentage points)	*p.m. Average annual development of market shares (percentage change)*
IT	–0.44 (***)	*+1.6*	–3.6 (***)	*–4.5*
FR	–0.83 (***)	*–1.0*	–2.7 (***)	*–2.0*
UK	–0.02 ( )	*–0.2*	–2.0 (***)	*–2.0*
BE	–0.09 (*)	*–0.4*	–1.7 (***)	*–1.7*
NL	–0.41 (***)	*–0.6*	–0.5 (***)	*–0.3*
SE	–0.26 (***)	*–1.1*	–0.4 (***)	*–0.2*
ES	–0.50 (***)	*+0.7*	+0.2 ( )	*–0.1*
AT	–0.29 (***)	*–0.6*	+0.1 ( )	*0.0*
DE	–0.10 (*)	*–1.8*	+0.7 (***)	*0.7*

Sources: Own calculations, based on data from the OECD and the NAI.
(1) Difference between average annual growth in own export prices and those of competitors' export prices.
(2) The component items cannot be added up due to the presence of a small residual contribution.
(***) / (**) / (*): significantly different from zero at the 1 p.c., 5 p.c., 10 p.c. level respectively and ( ): not significantly different from zero.

a large degree, imposed on the exporters, and that they can scarcely diverge from them since they risk having a smaller presence on those markets. As a consequence, in the face of prices that are, to a large degree, already set, exporters are only partially in a position to pass on the movements in production costs that they are faced with. In this case, the profit margins would serve as a cushion to offset the differences between movements in prices and costs. Any structurally unfavourable development of costs would weigh on profitability and would threaten to cause the activity of exporting to disappear in the long run.

The second stage of the analysis consists precisely in examining the extent to which the setting of export prices takes account of the development of production cost components, or rather prices of competitors. The main components of the cost borne by the exporter comprise the import prices of the raw materials (and more particularly, oil) and the intermediate inputs, as well as labour costs. Calculating an equilibrium export price involves attempting to estimate the extent to which the components of the cost can be passed on in the export prices. In the equation adopted, the export price depends on the unit labour cost in manufacturing industry, the import deflator and the oil price. Here again, only the equilibrium equation is estimated, without taking into account the short-term dynamics:

$$ln(XTD_i) = \alpha_1 . ln(ULC\_mf_i) + \alpha_2 . ln(MTD_i) + (1 - \alpha_1 - \alpha_2) . ln(Brent_i) + constant + \varepsilon$$

where, for each country i:
- XTD_i: export deflator;
- MTD_i: import deflator;
- ULC_mf_i: unit labour cost in manufacturing industry;
- $Brent_i$: price of crude oil, in the national currency unit.

The inclusion of the development of oil prices as a separate component in the equation, notwithstanding the fact that they are already included in the import deflator, is accounted for by the different weighting for energy in the deflator for exports and that for imports. Taking account of the coefficient associated with the "Brent" variable, the estimated total weighting of oil in export prices is equivalent to its implicit weighting in the import deflator (MTD) plus the correction measured by the coefficient $(1-\alpha_1-\alpha_2)$. Homogeneity of prices is imposed on the price equations, so that the sum of the price coefficients to be estimated must be equal to 1.

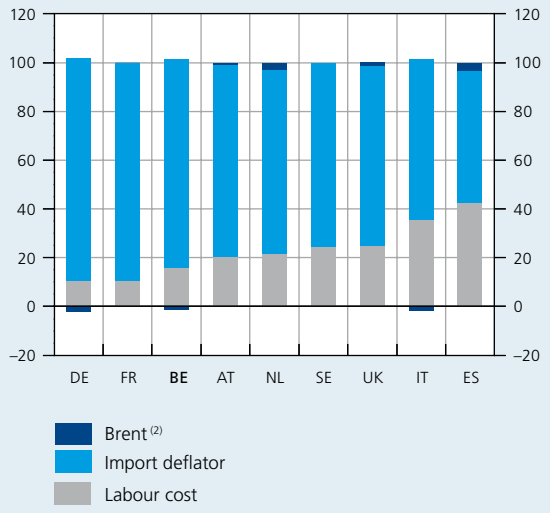
The unit labour cost adopted in the analysis relates to manufacturing industry because this is the sector that approximates best to the profile of the typical exporter. Using the concept of the unit labour cost makes it possible to take account of efficiency gains by the labour force, which have the effect of causing costs and, where relevant, export prices, to fall. As for import prices, this variable captures both the development in the cost of

imported inputs that play a part in the production of the exports, and also the effect of international competition. In this way, they reflect the extent to which prices are defined by the competition on the international markets (the proportion of *price-takers)*. Therefore, the less exporters are in a position to set their prices themselves, and find themselves obliged to align their prices with the global prices, the higher will be the coefficient associated with this variable. This means that the coefficients estimated in this context are fairly different from those obtained in the statistical breakdown for the weighting of the various cost components which comes out of the input-output tables.

The coefficients estimated in this way show that international prices exert a predominant influence on the movements of export prices. The import deflator – either owing to the importance of imported intermediate inputs, or because it largely reflects the prices operated by competitors – has a much larger weighting attached to it than unit labour costs; and the α_2 regression coefficient assumes a value of 0.6 to 0.9 according to the country. Between 1995 and 2008, amongst the countries examined in this study, the development in labour costs was passed on to export prices the least in Germany, France and Belgium, whilst the influence of labour costs was significantly higher in Italy and Spain.

CHART 3 IMPORTANCE OF THE DETERMINANTS (1) OF EXPORT PRICES

(percentages, estimate over the period 1995Q1-2008Q4)



Source: Own calculations, based on data from the OECD and the NAI.

(1) The relative share of the determinants is therefore equal to the coefficients in the equation for export prices.

(2) The determinant "Brent" is a correction factor that estimates the difference between the importance of oil in imports and exports.

The poor ability of Belgian exporters to pass on the changes in labour costs is confirmed by the results of surveys amongst enterprises (1). This phenomenon is all the more marked for standardised goods, for which the differentiation between producers is small and the competition on prices great. In this context, a controlled development of production costs is necessary in order to preserve profitability. More generally, given their key role in the operational decisions of the firm, labour costs have a direct influence on the quantity of work carried out. An increase in labour costs greater than the gains in productivity would reduce the demand for labour to the extent that other production factors (such as capital) can be substituted for it.

Lastly, any interpretation in macroeconomic terms of divergences in relative prices needs to be carried out with caution. It only makes sense if the international reference price – used as the point of comparison for the export prices – relates to a comparable basket of products in terms of quality and specialisation. Of course, this is not always the case: in practice, product markets are rather heterogeneous since countries generally specialise in a set of branches or products. This statistical phenomenon may lead to a certain underestimation of the importance of price competitiveness on the basis of data that are overly aggregated. Complementary analyses would be needed at the branch or enterprise level. However, the relevant data on prices are not always available at these levels and lend themselves less readily to international comparison. Such calculations lie outside the scope of this study, which only concerns general conditions of competitiveness.

3. Structure of exports

3.1 Export structure and performance

Since price competitiveness, considered at an aggregate level, is not sufficient to explain the development of market shares, it is necessary to take account of elements that are structural in nature. This section is concerned with assessing how the elements relating to the structure of exports, such as geographical orientation or specialisation by product, influence Belgium's involvement in international trade in goods and, conversely, how developments associated with globalisation affect the structure of exports.

(1) Aucremanne L. and M. Druant (2005).

By way of a reminder, with an average annual growth rate of 5.4 p.c. in nominal terms, the pace at which Belgium expanded its exports of goods was 1 percentage point lower than the average result for the countries considered in the reference zone over the whole of the period 1995-2008. Breaking this development down between the dynamism of the markets served and the effects of shares of those markets shows that the traditional markets are less expansive than on average in the reference zone, both in terms of geographical orientation and specialisation by product. However, these market effects only explain part of the lower growth in Belgium's exports; the losses in market shares are also larger than in the reference zone.

The negative divergence in the pace of expansion of exports includes 0.3 percentage points for an unfavourable geographical structure. In fact, the average annual expansion in the relevant markets for Belgium, calculated by weighting the development of the import demand of the various countries by the share of those countries in Belgium's exports, was less (+8.1 p.c.) than that in the relevant markets for the reference zone (+8.4 p.c.). If the geographical orientation is considered on its own, Belgium's external performance in terms of market shares was 0.7 percentage points per year lower than that of the reference zone between 1995 and 2008.

The same conclusion is reached when the relevant markets are calculated according to the breakdown by product. The structure effect is unfavourable to the tune of 0.2 percentage points, with a growth rate in the markets of 8.2 p.c. for Belgium and 8.4 p.c. for the reference zone. However, the poor dynamism of exports relative to the reference zone is the essential element that explains why Belgium's external performance is lower than that of the reference zone. The losses in market shares reach 2.6 p.c. per year for Belgium and 1.7 p.c. for the reference zone, which is a differential of –0.9 percentage points per year between 1995 and 2008.

The negative difference in the expansion of exports and the structural delay in the development of market shares were not constant over time. Compared to the reference zone, Belgium experienced a particularly unfavourable development of exports and relatively large losses in market shares from 1995 to 2000. At this point, Belgium's performance was the weakest of all the countries in the zone, with a differential in the pace of expansion of exports that reaches 3.3 percentage points per year. With regard to the development of market shares, the divergence reaches –3 percentage points per year when only the geographical orientation is taken into account and –2.3 percentage points per year when only the structure by products is taken into account.

In contrast, with an average annual growth of 4.4 p.c. in nominal terms over the period from 2000 to 2008, Belgium's exports expanded more rapidly than the average for the reference zone, rising by 0.4 percentage points. This better performance results partly from the robust demand for semi-finished products originating from the emerging countries around the middle of the

TABLE 3 COMPARISON OF THE DEVELOPMENT OF EXPORTS, EXPORT MARKETS AND MARKET SHARES

(goods, by value, average annual change in percent, unless stated otherwise)

	1995-2008			1995-2000			2000-2008		
	Belgium	Reference zone[1]	Differential[2]	Belgium	Reference zone[1]	Differential[2]	Belgium	Reference zone[1]	Differential[2]
Exports	5.4	6.5	–1.0	7.0	10.6	–3.3	4.4	4.0	0.4
World markets weighted geographically	8.1	8.4	–0.3	11.7	11.9	–0.1	5.8	6.3	–0.4
p.m. Gains (+) / losses (–) in market shares	*–2.5*	*–1.7*	*–0.7*	*–4.3*	*–1.2*	*–3.0*	*–1.3*	*–2.1*	*0.8*
World markets weighted by product	8.2	8.4	–0.2	11.7	12.8	–1.0	6.1	5.7	0.4
p.m. Gains (+) / losses (–) in market shares	*–2.6*	*–1.7*	*–0.9*	*–4.2*	*–1.9*	*–2.3*	*–1.6*	*–1.6*	*0.0*

Sources: EC, NAI, UNCTAD.

(1) Non-weighted average of 12 countries: FR, DE, NL, UK, IT, ES, SE, AT, IE, PT, EL, FI.

(2) Ratio between the growth for Belgium and that for the reference zone, in percent.

2000s, during an economic upturn at the global level. Amongst the branches that are relatively important in Belgium, the iron and steel industry and plastic products in primary forms in particular benefited from high prices and volumes. This explains why gains in market shares were observed when the specialisation by type of product was not taken into account in the calculation of relevant markets and, as a consequence, why the structure by product is favourable over this period. Furthermore, the losses in market shares recorded by Belgium from 2000 to 2008 are smaller than during the second half of the 1990s. Road vehicles, pharmaceutical products and organic chemical products partly explain this more favourable situation. Their contribution to the losses in market shares is quantified at 0.1 percentage points from 2000 to 2008 as against more than 1 point from 1995 to 2000. However, with regard to road vehicles, this improvement originates from the result for a single year (2001), and does not reflect a fundamental movement. In contrast, performance clearly deteriorated during the last few years under consideration.

The structure effects need to be examined with care since they can be influenced by particular circumstances associated notably with the cycle of business activity. It can be assumed in this regard that the favourable situation observed between 2000 and 2008 will not be repeated with the same intensity since the emerging countries are in the process of building up their own production capacity for the products referred to.

Looked at over the whole of the period from 1995 to 2008, the situations of the various countries are different with respect to the structure effects:

- the United Kingdom, Ireland, Sweden and the Netherlands benefit from a relatively favourable product effect. The structure of their exports in relation to that of the reference zone is directed at products that enjoy stronger world demand. On the other hand, the demand in markets to which they export is less dynamic than that of the average of the outlets for the reference zone;
- as far as Greece, Finland, Germany and Italy are concerned, their exports display a better orientation geographically but concern products for which global demand is not very robust in relative terms;
- Austria benefits from the two favourable effects;
- France, Spain and Portugal, like Belgium, do not seem to benefit either from a product effect or from a positive location effect.

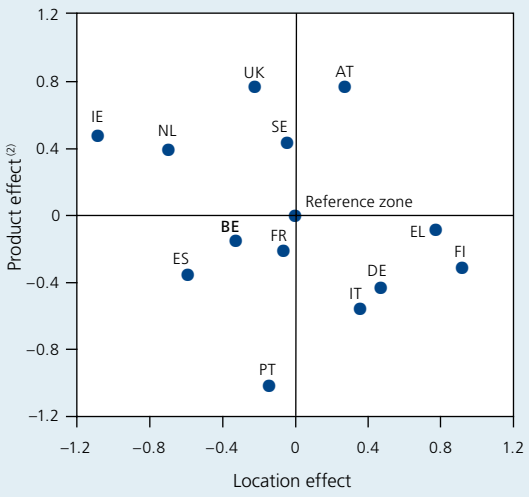
Box 2 provides a more detailed analysis of these product and location effects for Belgium and the reference countries. Even though this analysis makes it possible to bring out some solid conclusions, notably with regard to the low weighting of high-technology equipment in Belgium's exports and the high weighting of products for which demand is not very dynamic, it is wise to be wary of presenting an overly simplistic view of the results of the analysis by product, for several reasons.

Firstly, as already pointed out, the progressive or regressive nature of the demand for a product may change over time. Moreover, even if the categories taken into account in this analysis are relatively finely drawn – with a breakdown into three hundred types of product – they may be relatively heterogeneous, notably in terms of quality or technical specifications. Lastly, some products may represent markets that are important in quantitative respects without the demand relating to them being very dynamic.

To sum up, the orientation and specialisation of exports result from structural development, associated with the factors of location, economic structure and the build-up of specific centres of activity. Modifying these can therefore only be progressive, but it is a good idea to promote this in order to improve the exploitation of Belgium's comparative advantages.

CHART 4 PRODUCT AND LOCATION EFFECTS (1) OF MARKETS FOR BELGIUM AND THE COUNTRIES IN THE REFERENCE ZONE

(annual averages in percent, 1995-2008)



Source: Calculations by NBB.

(1) Difference between the growth in country i's markets and that of the reference zone.

(2) Calculated on the basis of markets weighted by product at the level of detail of the SITC 3-digit classification.

Box 2 – Product and location effects; explanation of the divergence in dynamism

Since markets are a weighted measure of the import demand directed at the country, it is possible to identify the partner(s) or product(s) that explain the divergence in dynamism between Belgium and the countries in the reference zone.

LOCATION EFFECT

Even in the era of globalisation, geographical proximity remains an important factor in the organisation of commercial trade, owing to transport costs and the existence of cultural or institutional ties. In general, the exports of Belgium and the reference countries are mostly directed towards the European countries. However, there are differences in their geographical structure which are at the root of the location effect.

TABLE 1 GROWTH IN WORLD IMPORTS AND GEOGRAPHICAL STRUCTURE OF EXPORTS

(1995-2008, markets in goods, in value)

	p.m. Development of imports[1]	FI	EL	DE	IT	AT	**Zone**[2]	SE	FR	PT	UK	**BE**	ES	NL	IE
Location effect[3]		0.9	0.8	0.5	0.4	0.3	**0.0**	–0.0	–0.1	–0.1	–0.2	**–0.3**	–0.6	–0.7	–1.1
							(destination of exports, as a percentage of the total)								
Europe	*8.7*	72.6	79.4	72.9	69.9	85.2	**75.6**	71.9	71.1	83.3	63.7	**80.3**	81.2	85.1	70.8
of which:															
EU15	*7.9*	52.7	48.8	55.8	54.7	60.6	**61.6**	55.0	62.4	79.3	56.8	**74.1**	69.7	77.6	65.3
12 new members of the EU	*15.8*	6.9	16.0	8.8	6.9	14.5	**6.0**	4.4	3.3	1.5	2.6	**3.0**	3.1	3.3	1.3
America	*8.6*	10.4	6.8	12.2	12.6	6.5	**11.1**	12.9	12.2	7.5	17.3	**6.4**	10.6	5.8	17.8
of which:															
United States	*8.3*	7.4	4.8	9.0	8.2	4.7	**7.9**	9.4	7.3	5.2	14.0	**4.7**	4.3	4.1	16.1
Asia	*9.6*	14.2	11.9	12.8	13.5	7.3	**10.6**	12.1	11.8	4.1	14.9	**10.1**	7.5	7.2	9.4
of which:															
Middle East	*13.1*	3.9	8.1	3.5	5.5	2.2	**3.7**	3.0	3.9	1.4	5.0	**3.6**	3.5	2.4	1.6
China	*19.0*	2.7	0.4	2.1	1.3	1.1	**1.2**	1.9	1.2	0.3	1.0	**0.9**	0.8	0.6	0.6
Japan	*6.5*	1.9	0.6	1.9	1.7	1.2	**1.5**	2.3	1.6	0.5	2.0	**1.0**	0.9	0.9	2.8
Africa	*10.8*	1.9	3.6	1.9	3.8	1.1	**3.0**	1.9	6.2	5.0	2.8	**2.5**	4.6	1.7	1.2
Oceania	*9.4*	1.1	0.6	0.7	0.9	0.6	**0.8**	1.3	0.6	0.4	1.5	**0.5**	0.5	0.4	0.9
Total		**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Sources: EC, NAI, UNCTAD.
(1) Average annual change in percent, imports in US dollars.
(2) Reference zone: non-weighted average for the twelve countries shown (excluding Belgium).
(3) Difference between the growth in the relevant markets for the country in question and the average growth in the relevant markets for the reference zone.

With regard to Belgium, over the whole of the period 1995-2008, the unfavourable geographical orientation recorded in relation to the reference zone results from the larger share of Europe in exports, and more particularly that of the EU15, and from an under-representation of the countries with stronger growth, such as the new members of the EU, China and the countries of the Middle East. In particular, the EU15 represented nearly three-quarters of Belgium's exports on average but imports only expanded there by 7.3 p.c. as against an increase of 9.1 p.c. per year for world trade.

The countries which have a positive location effect, namely Germany, Italy, Austria, Greece and Finland, export more to the new members of the European Union, including mainly the countries of Eastern Europe where the demand for imports was twice as robust as in the old members of the EU15. These countries are also more in contact with the dynamic countries of Asia.

With regard to the countries recording a negative location effect, there are various situations:
- even though Sweden exports more than average to the countries of Asia, the weighting of the old industrialised countries such as the United States and Japan contributed to the slightly negative location effect;
- the Netherlands, Portugal and Spain, like Belgium, send more than 70 p.c. of their exports to the countries of the EU15, each of which is relatively more closely in contact with its own neighbours;
- for its part, France is relatively more oriented towards the Mediterranean countries and the countries of Africa, such as Algeria, Morocco and Ivory Coast, where growth in demand for imports has been lower than the growth in world demand;
- the United Kingdom and Ireland have an export structure more oriented towards the Anglo-Saxon countries, where the demand for imports of goods has more often than not been lower than global demand.

PRODUCT EFFECT

In the same way, it is possible to identify, within the structure of the exports of Belgium and the reference countries, the product(s) which weighed on the development of the markets throughout the period under review.

The growth in imports by product in relation to that of total imports makes it possible to calculate the progressive or regressive nature of a product, that is to say to determine whether demand at the world level for the products under consideration has grown more or less rapidly than total world imports. Too great a specialisation in progressive products, or an under-specialisation in regressive products, explains the presence of a favourable product effect and vice versa.

Belgium's over-specialisation in regressive products such as road vehicles, chemical products, diamonds and other commodities[1] and the under-specialisation in miscellaneous equipment[2] and telecommunications equipment largely explains the unfavourable product effect. These effects were partially offset by the over-specialisation in metal products, which saw a greater average annual growth than all products put together between 1995 and 2008, and also by the under-specialisation in miscellaneous manufactured articles[3], which were rated as regressive over the same period.

The countries where the product effect is favourable notably benefited from a more marked specialisation in several progressive products:
- Ireland, and to a lesser extent Austria, benefited from their over-specialisation in miscellaneous equipment and medicinal products, as well as in metal products with specific regard to Austria;

(1) Category bringing together rubber and plastic.
(2) Category bringing together notably industrial equipment and machines for processing information.
(3) Category bringing together notably weapons, munitions, printed matter, jewellery and musical instruments.

TABLE 2 GROWTH IN WORLD IMPORTS AND STRUCTURE OF EXPORTS BY PRODUCT CATEGORY [1]

(1995-2008, markets in goods, in value)

	Degree of progressiveness in global imports [2]	UK	AT	IE	SE	NL	Zone [3]	EL	BE	FR	FI	ES	DE	IT	PT
Product effect [4]		0.8	0.8	0.5	0.4	0.4	**0.0**	–0.1	**–0.2**	–0.2	–0.3	–0.4	–0.4	–0.6	–1.0
							(percentages of exports by product)								
Selection of progressive products															
Energy products	7.5	5.6	1.9	0.3	2.7	5.6	**4.7**	16.1	**5.8**	2.6	2.7	6.6	1.1	3.3	8.0
Medicinal products	5.0	5.5	4.7	10.4	5.1	3.9	**3.9**	1.1	**3.8**	5.0	1.1	2.8	3.4	2.6	1.8
Metal products	1.5	4.5	5.7	0.6	6.2	3.7	**4.5**	9.8	**8.0**	3.3	4.7	5.2	4.5	4.1	1.9
Miscellaneous equipment	1.5	11.8	5.5	17.5	5.5	12.0	**7.5**	1.8	**3.6**	7.7	7.8	3.5	6.6	5.6	4.1
Tele-communications	1.1	4.4	3.3	2.7	14.8	3.0	**4.9**	2.2	**2.1**	3.4	17.3	2.1	2.7	1.3	2.0
Selection of regressive products															
Road vehicles	–1.0	7.5	8.1	0.1	12.3	3.8	**6.8**	1.2	**13.7**	7.0	3.7	11.6	17.2	5.3	4.2
Miscellaneous manufactured articles	–1.3	6.6	4.9	6.1	3.3	3.1	**4.0**	3.8	**3.0**	3.6	2.0	3.7	3.1	5.4	2.3
Diamonds	–2.0	3.3	3.0	0.6	0.8	0.5	**2.3**	3.9	**7.6**	1.5	0.9	4.5	1.3	3.4	4.3
Chemical products	–2.2	3.6	1.8	22.7	1.0	4.4	**3.9**	0.7	**5.7**	3.1	1.0	2.7	3.0	1.7	1.2
Food	–3.8	4.7	4.3	7.3	2.6	12.4	**7.0**	17.3	**9.6**	8.0	2.6	9.7	2.6	4.4	8.1
Textiles	–4.2	4.4	3.6	0.5	2.3	3.2	**4.7**	2.5	**5.2**	16.4	5.6	6.7	3.3	3.7	3.6
Other commodities	–6.8	1.0	1.0	0.2	1.3	2.8	**1.3**	1.6	**5.4**	1.4	0.9	1.7	1.7	1.2	0.9

Sources: EC, NAI, UNCTAD.

(1) Details of the categories of products are shown in Annex 1.

(2) Difference between the growth in imports for the product in question and total growth in world imports.

(3) Reference zone: non-weighted average of the twelve countries shown (excluding Belgium).

(4) Difference between the growth in markets weighted by product for the country in question and the average growth in markets weighted by product for the reference zone.

– the United Kingdom and Sweden also benefited from an over-specialisation in medicinal products and metal products, as well as in telecommunications with regard to Sweden;
– the favourable product effect of the Netherlands originates partly from an over-specialisation in miscellaneous equipment.

These specialisations largely offset those oriented towards regressive products as in the case of Ireland, where the share of chemical products is very large, or Sweden whose specialisation in road vehicles is comparable to that of Belgium.

In contrast, the countries where the product effect is negative underwent an over-specialisation in regressive products and/or an under-specialisation in the progressive products:

– Greece, Portugal, France and Spain were faced with weaker demand on the market for food products and this was also the case on the textiles market for the latter two countries;
– Germany, like Belgium, suffered from an over-specialisation in road vehicles, which were less in demand, as well as from an under-specialisation in equipment and telecommunications.

3.2 Specialisation according to production factor content

In the context of a macroeconomic examination of export performance, it is interesting to group the products traded according to the nature of the underlying production, according to the production factor intensity. It is in fact the relative availability of the various factors which determines the comparative advantages of economies.

Building on work done by the ECB[1], the distribution of the SITC 3-digit products is carried out on the basis of the branch of activity in which they are produced. A predominant production factor, on the one hand, and one or more products, on the other hand, are associated with each branch of activity. Five groups of products are thus defined, each designated by an abbreviation based on its designation in English:
– LI: products requiring a high level of labour *(Labour Intensive)*, the main examples of which are diamonds (processing of precious stones), paper, textiles and clothing;
– CI: products requiring a high level of capital *(Capital Intensive)*, such as vehicles for transporting people, the accessories for those vehicles and steel;
– DRI: difficult-to-imitate products incorporating a substantial level of research and innovation *(Difficult-to-imitate Research Intensive)*, including electrical equipment;
– ERI: easy-to-imitate products incorporating a substantial level of research and innovation *(Easy-to-imitate Research Intensive)*, such as medicinal products, pharmaceutical products and plastics in primary forms;
– RMI: products derived directly from raw materials *(Raw Materials Intensive)*, comprising energy products, fruit and metals.

In 1995, compared to the reference zone, Belgium was specialised in the export of goods predominantly requiring capital (CI) for their production. This group accounted for a little less than one-third of exports as against one-fifth for the reference zone. Similarly, products incorporating a technology regarded as easy to imitate (ERI) were over-represented in Belgium, making up some 19 p.c. of its exports.

On the other hand, products that are research-intensive and difficult to imitate (DRI) accounted for only 10 p.c. of Belgium's exports as against twice that amount in the reference zone, and three times as much in France and Germany. Conversely, although Belgium's specialisation is comparable to that of the reference zone in the categories associated with raw materials (RMI) and with the factor of labour (LI), the gap in relation to its neighbours is marked.

Overall, in 1995, Belgium's deficit for those products incorporating a substantial level of research and innovation was large in relation to the reference zone but especially so in relation to its main neighbours. On the world markets, facing goods produced at lower cost by the emerging economies and those of the advanced countries incorporating leading-edge technologies, Belgium seemed to undergo some delay in adapting its exporting structure so as to allow it to remain competitive.

Amongst the types of product in which it was specialised, labour-intensive products saw less robust demand than the other. Moreover, it is for these products, although also for capital-intensive products, that competition from the emerging countries was greatest. In particular, the largest divergence was found in losses in market shares for those products where production predominantly requires capital. Losses in market shares reached 2.3 p.c. per year between 1995 and 2008, and as much as 5.4 p.c. per year in the first five years of the period.

In contrast, with regard to the products requiring a substantial level of research and innovation, Belgium recorded gains in market shares over the period. These gains were higher than those found in the reference zone for products that are easy to imitate and slightly lower for products that are difficult to imitate.

As far as the products associated with raw materials are concerned, the losses in market shares, which amount to

(1) Cf. Baumann U. and F. di Mauro (2007).

TABLE 4 DEVELOPMENT OF EXPORTS AND DEMAND IN THE VARIOUS GROUPS

(average annual change in percent, 1995-2008, unless stated otherwise, by value)

	LI[1]	CI[2]	DRI[3]	ERI[4]	RMI[5]	1995-2000 CI[2]
I. Structure of exports (1995, percentages of total exports)						
Belgium	25.5	29.4	10.0	19.0	19.0	
Reference zone	26.4	19.9	19.9	16.9	16.9	
of which:						
Germany	19.0	27.4	30.2	15.5	7.9	
France	17.0	24.1	28.0	15.4	15.5	
Netherlands	15.2	15.5	14.4	24.8	30.1	
II. External demand						
Markets of Belgium[6]	5.2	8.1	8.0	9.5	10.7	11.1
Markets of the reference zone[6]	3.4	8.2	6.1	9.0	10.2	11.2
III. Exports						
Belgium	4.1	5.6	8.1	10.4	9.3	5.7
Reference zone	3.9	7.9	6.7	8.2	7.7	10.7
of which:						
Germany	6.2	7.1	7.1	7.6	8.8	9.0
France	3.7	4.7	3.8	5.0	5.0	8.0
Netherlands	6.5	7.6	8.2	8.7	8.9	7.6
IV. Market shares						
Belgium	–1.1	–2.3	0.0	0.8	–1.3	–5.4
Reference zone	0.5	–0.2	0.5	–0.8	–2.3	0.0
of which:						
Germany	1.8	–0.7	1.3	–1.1	–0.5	–2.6
France	0.1	–3.0	–0.8	–4.1	–3.5	–2.8
Netherlands	3.0	–0.5	1.7	0.4	–2.4	–2.3

Sources: EC, NAI, UNCTAD.
(1) Products where production predominantly requires labour.
(2) Products where production predominantly requires capital.
(3) Difficult-to-imitate products incorporating a substantial level of research and innovation.
(4) Easy-to-imitate products incorporating a substantial level of research and innovation.
(5) Products derived directly from raw materials.
(6) Indicators for foreign outlet markets.

1.3 p.c. per year between 1995 and 2008, were lower than those of the reference zone.

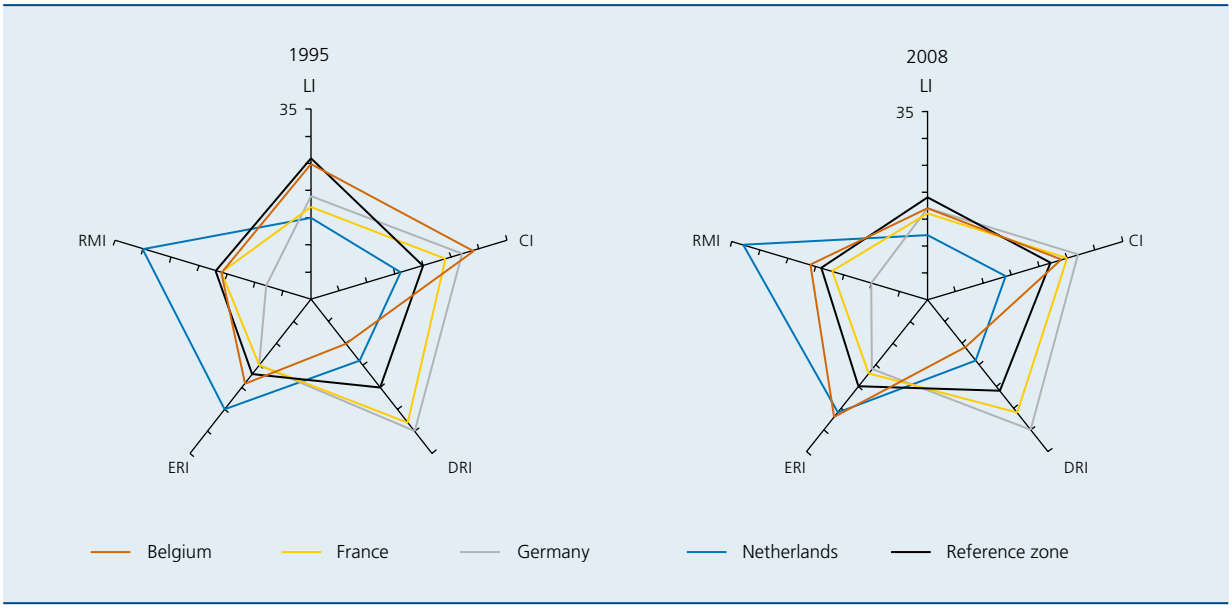
Over the period, the exports of the Netherlands were relatively dynamic in the light of the demand arising and in the light of the exports of the reference zone, for all categories. The performance of Germany, measured by way of the indicator for market shares, was equal to or higher than that of the reference zone. As for French exports, these lacked dynamism in all categories and especially in that of road vehicles and steel; the losses sustained were significant in the light of those of the zone.

3.3 Adjustment of structure

Prior to the marked deterioration of Belgium's export performance between 1995 and 2000, the structure of exports was less oriented towards countries with high growth. This structure was also characterised by an over-representation of products that mostly incorporate

CHART 5 DEVELOPMENT OF EXPORT STRUCTURE ACCORDING TO PRODUCTION FACTOR CONTENT

(percentages of total exports)



Sources : EC, NAI.
LI : products where production predominantly requires labour ;
CI : products where production predominantly requires capital ;
DRI : difficult-to-imitate products incorporating a substantial level of research and innovation ;
ERI : easy-to-imitate products incorporating a substantial level of research and innovation ;
RMI : products derived directly from raw materials.

the factors of capital and labour and an under-representation of those where their design depended strongly on research and innovation. However, this structure was modified between 1995 and 2008, both from the viewpoint of specialisation by product and geographical orientation.

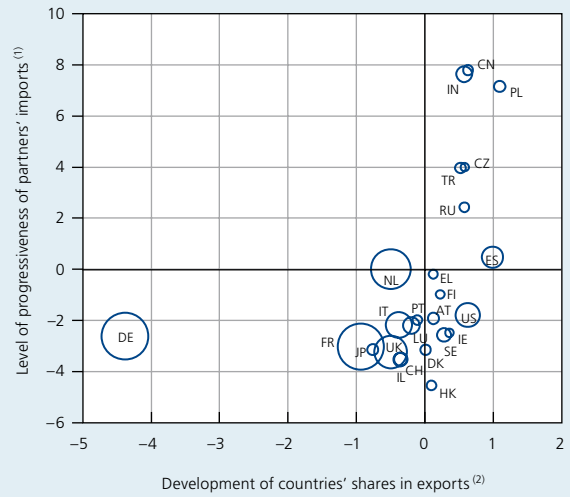
As far as specialisation by product is concerned, the restructuring was reflected more clearly than in the reference zone and even more so than amongst the three main neighbours. Thus, the share of products incorporating a substantial level of research and innovation was markedly strengthened, rising from 29 p.c. to 38 p.c. of total exports. However, this movement is based essentially on products that are easy to imitate – in this instance, pharmaceutical products. The share of products that are difficult to imitate only expanded by 1 percentage points over the whole of the period in fact, which is comparable to the expansion in the reference zone but is still insufficient in view of the relative divergence in specialisation for this type of product. Although Belgium succeeded in following external demand for this type of product, it was not able to strengthen its position. The weighting of the CI and LI groups in turn decreased markedly, by 5.6 points for capital-intensive products and 8.3 points for labour-intensive products respectively, owing both to the relative weakness of the demand for these products and to large losses in market shares. This latter movement seems therefore to have been undergone rather than expressing any willingness to reorient.

As far as the adjustment of geographical structure is concerned, Belgium's exports remain largely oriented towards Europe and in particular the old members of the European Union, the demand from which was less dynamic than other regions, such as Asia or America, over the period. However, the importance of its three main neighbours in Belgium's export structure was reduced in favour of more dynamic countries in Eastern Europe, such as Poland and the Czech Republic. The exports also served more expansive markets such as China, India, Turkey and Russia. In 1995, more than 50 p.c. of exports went to the three main neighbours. Some twelve years later, this share has fallen by nearly 6 percentage points, mainly owing to the fall in the share of exports going to Germany.

This decrease in the weighting of the traditional markets in exports is essentially due to a reorientation of the demand coming from these countries in favour of countries that are more competitive in terms of costs, rather

CHART 6 DEVELOPMENT OF THE GEOGRAPHICAL STRUCTURE OF BELGIUM'S EXPORTS

(1995-2007)



Sources: NAI, UNCTAD.

(1) Difference in percentage points between the average annual growth in the imports of the country in question and the growth in world trade.

(2) Difference in percentage points between the share of each country in Belgium's exports between 2007 and 1995. The size of the countries corresponds to their average importance in Belgium's exports over the period 1995-2007.

than any sluggishness of demand for imports. Thus, the bulk of the fall in the share of Belgium's exports going to Germany (–4.4 percentage points between 1995 and 2007) and France (–0.9 percentage points) originates from two products: road vehicles and textiles. With regard to these products, the growth in the demand for imports coming from these two countries, although it was less robust than that for other products, was markedly higher than that of Belgium's exports to them. More generally, following Belgium's example, the whole group of countries in the EU15 suffered from a re-orientation of the demand for imports coming from Germany and France for this type of product in favour of other suppliers.

As far as the more weighty products are concerned, such as paper, iron and steel, where the cost of transport is larger, the pace of expansion of Belgium's exports is comparable to that of the demand directed by Germany and France towards the domestic markets (1). On the other hand, as far as medicinal products are concerned, which are the prototype of products requiring a great deal of research and innovation, the demand from Germany and France directed at the countries of the EU15 remains robust.

These examples of reallocation of import demand coming from Belgium's traditional partners confirm the theoretical predictions: in the face of the increased competition on standardised products tending to require production technologies rich in labour or equipment, it is mainly production with high value added, which is rich in innovation or research, that will make it possible for the advanced economies to profit from the growth in world trade.

(1) As far as Belgium's performance on the French market is concerned, the impact of the loss of market share resulting from vehicles and textiles was lessened by exports of energy products – and more particularly gas.

TABLE 5 DEVELOPMENT OF EXPORTS OF GOODS FROM BELGIUM TO GERMANY AND FRANCE

(1995-2007, unless stated otherwise, by value)

	Pre-dominant produc-tion factor	Belgium's exports to Germany			Germany's demand for imports		Belgium's exports to France			France's demand for imports	
		Weighting 2007	Develop-ment of weighting	Growth	Growth	*Growth outside EU15*	Weighting 2007	Develop-ment of weighting	Growth	Growth	*Growth outside EU15*
Energy products	RMI	0.9	0.3	9.0	13.5	*14.3*	1.7	1.3	18.1	14.3	*14.2*
Medicinal products	ERI	0.5	0.2	10.5	15.3	*11.4*	0.4	0.1	7.4	11.4	*10.7*
Iron and steel	CI	1.5	0.1	6.6	7.6	*8.3*	1.9	0.4	8.3	6.7	*7.3*
Road vehicles	CI	2.7	–2.1	1.0	4.9	*10.9*	1.2	–0.8	1.6	6.4	*13.6*
Paper	LI	0.3	–0.1	3.3	3.2	*5.6*	0.4	–0.2	3.0	2.7	*4.6*
Textiles	LI	0.3	–0.7	–3.2	0.2	*2.5*	0.4	–0.5	–1.3	0.3	*3.5*
Total		**16.5**	**–4.4**	**3.9**	**6.5**	***8.1***	**17.1**	**–0.9**	**5.5**	**6.1**	***7.4***

Sources: EC, NAI.

4. Population of exporting firms

Behind the overall figures for foreign trade, it is the firms that decide whether or not to involve themselves in international business. It can be seen of course that even within branches of activity defined in a relatively detailed manner, some firms decide to be active on international markets whilst others remain present solely on the domestic market. A knowledge of the features of the population of exporting firms is therefore useful in order to promote the restructuring of exports.

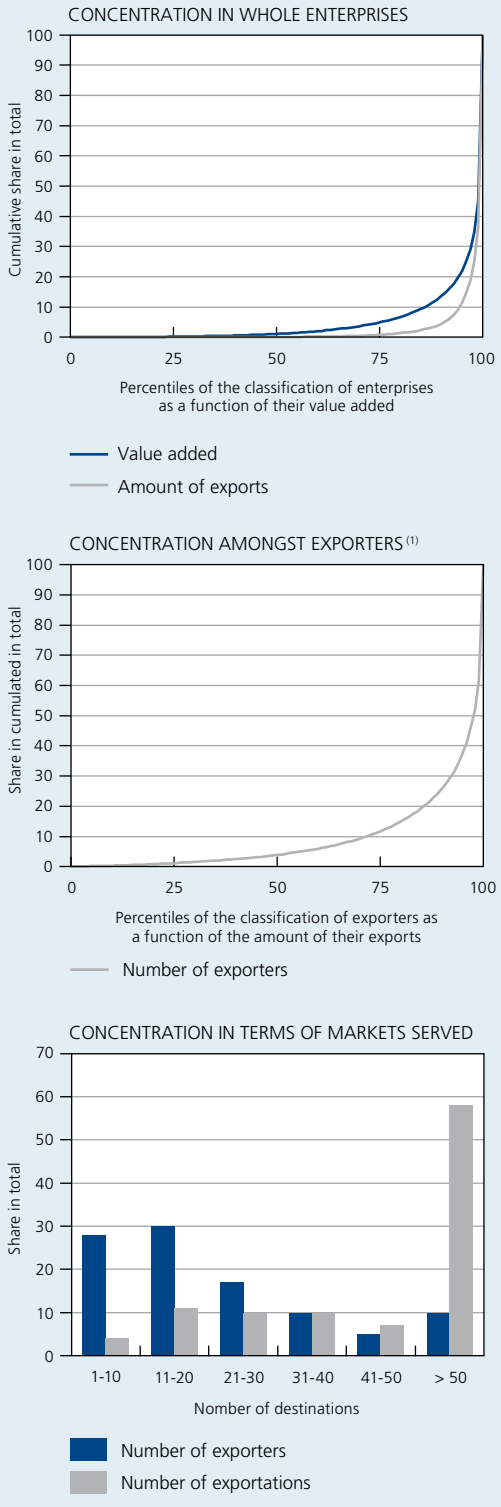
The developments described in the previous section are essentially due to a relatively limited population of firms. Of the 24,072 manufacturing firms filing annual accounts for the year 2007, only 2,762, or 11.5 p.c. of them, actually have any substantial involvement in export markets[1]. However, it should be pointed out that this figure does not take account of sales of goods to commercial intermediaries, who can in turn send them to other countries.

This concentration of exports makes itself felt at three levels. Firstly, it is mostly the large firms which export. The concentration of a large portion of economic activity within a relatively restricted number of enterprises is not limited to foreign trade, of course. It is also reflected in the distribution of value added amongst the industrial firms. As illustrated by one of the Lorenz curves shown in the first panel of Chart 7, those manufacturing enterprises situated in the upper decile of the classification drawn up according to their value added concentrate 86 p.c. of industrial value added amongst themselves alone. This phenomenon is all the more pronounced with regard to the volume of exports, which is almost entirely concentrated in the upper decile. Furthermore, amongst the exporters, a limited number of firms accounts for the largest portion of the amounts exported. Those appearing in the upper decile of the classification according to the amount of exports actually account for nearly three-quarters of the total. Lastly, the majority of exporting enterprises are only active on a relatively limited number of foreign markets. Thus, 58 p.c. of these, representing 15 p.c.

(1) Firms having a "substantial involvement in export markets" here means those firms whose total value in exports, expressed in 2006 prices, is higher than one million euro. The choice of this definition is associated with the changes that have taken place in the organisation of the Intrastat survey. In the context of this survey relating to intra-Community trade in goods, firms are required to report their exports to the other countries of the European Union once the total amount of these exports exceeds a certain threshold. In 2006, this threshold rose from 250,000 euro to one million euro, an aspect which considerably restricted the population of exporters taken into account, by excluding mainly the occasional small exporters, whilst the coverage of the amount of exports was only marginally affected. Therefore, in order to ensure the comparability over time of the microeconomic data used in the context of this article, a firm was regarded as an exporter if and only if its total exports were equal to or higher than one million euro in 2006 prices. The threshold was adjusted on the basis of the unit value index for exports, as published by the NAI, in order to neutralise the effect that the development of prices could be cast on the estimated changes in the number of exporters.

CHART 7 CONCENTRATION OF EXPORTS AMONGST MANUFACTURING FIRMS

(data for 2007; shares in percent)



Source: NBB.

(1) A firm is regarded as an exporter when its total value in exports, expressed in 2006 prices, is equal or higher than one million euro. In 2007, 11.5 p.c. of manufacturing firms fulfilled this criterion.

of the total amount of exports, export to less than twenty destinations. At the other end of the scale, firms of larger size can be found which export to many more markets. However, their number is much smaller: only 10 p.c. of exporters serve more than fifty different countries. Since they account for around 58 p.c. of total industrial exports, they make up the "hard core" of exporting enterprises and the major part of the developments in Belgium's foreign trade flows is therefore attributable to them.

In theory, this phenomenon of concentration of exports can be explained by the heterogeneous nature of the population of enterprises and by the existence of large entry costs on foreign markets. These costs take on different forms; for example, they may follow from the adaptation of products to the preferences and standards prevailing in the foreign countries or expenditure associated with the advertising or research of commercial partners. Designated by the term *sunk costs*, because they are only incurred at the time of entry into a market and are not recoverable, the result of these costs is that it is mainly the most highly performing firms which export because they are the ones that have the resources needed to meet them.

The fact that it is necessary to reach a certain level of performance in order to enter export markets is reflected in the characteristics of the firms which attain it. As Table 6 shows, the exporting firms are distinct in several respects from those that are active solely at the local level. For an equal number of employees, they use capital more intensively and produce more value added. This higher performance is similarly reflected in the overall productivity of the factors estimated according to the method of Levinsohn and Petrin (2003). This extra productivity is moreover passed on in the remuneration paid to employees. The differences between exporters and enterprises which only direct their activities at the local market are not specific to Belgium. It is a stylised fact which has already been brought out by way of microeconomic data from several other countries[1].

Furthermore, Table 6 draws a distinction between continuing exporters (i.e. those exporters present on the external markets during two consecutive years), new exporters and firms which, at a given time, exit from foreign markets. The indicators belong to the new exporters confirm the need for a firm to have a sufficient level of productivity before it is able to operate on foreign markets. In most cases, this level is not achieved at the creation of the firm, but after several years of building it up; the median age of the new exporters in 2007 is fifteen years. In other words, entry into export markets requires a certain period of preparation.

The data relating to exiting exporters tend to indicate that firms also need to be sufficiently highly performing in order to remain active at the international level: the firms which withdraw from external markets seem to suffer from a handicap both in relation to firms which manage to enter them and in relation to continuing exporters.

(1) In this regard, see notably Mayer and Ottaviano (2007) and The International Study Group on Exports and Productivity (2008).

TABLE 6 CHARACTERISTICS OF EXPORTERS

(averages over the period 2000-2007, unless stated otherwise)

	All exporters	Continuing exporters	New exporters	Exiting exporters
Differences in percent in relation to non-exporting firms of the same size[1]:				
value added	+48	+50	+43	+24
capital intensity	+57	+58	+59	+19
total factor productivity	+7	+8	+4	n.s.[2]
labour costs per worker	+12	+13	+12	+19
Percentage of foreign enterprises in 2007	18	22	9.4	0
Median age in 2007 (years)	22	26	15	24

Source: NBB.

(1) Obtained on the basis of least square regressions over the whole period 2000-2007, these indicators express the differences in percent in relation to purely local firms employing an identical number of staff. The regressions carried out to produce them also include, amongst their explanatory variables, the employment level of each firm and a series of binary variables intended to take account of effects intrinsic to each year and to the various industries (defined on the basis of the NACE 4-digit code).

(2) Non-significant effect.

Their level of productivity, in particular, is not significantly different from that of non-exporting firms on average.

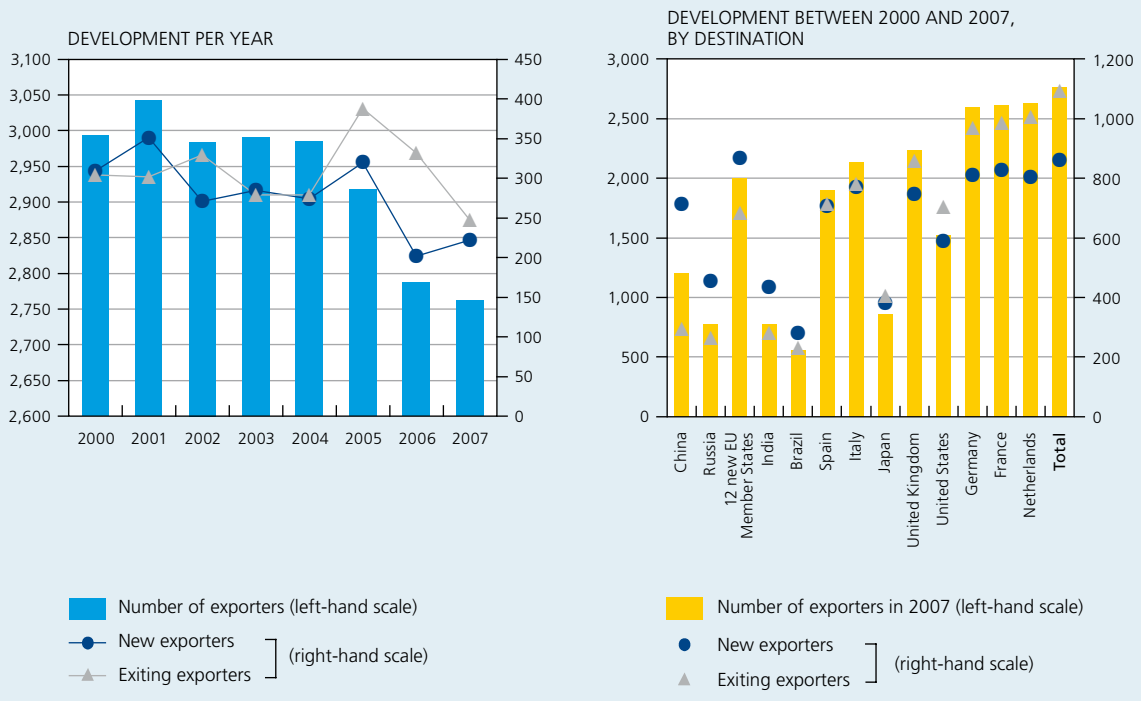
Moreover, firms belonging to a foreign group seem to benefit from an easier access to foreign markets, an aspect which may be explained by the fact that they are generally more highly performing and have a better knowledge of the external outlets. A relatively large proportion of exporting firms is in fact found to be held by foreign shareholders, whilst firms which withdrew from external markets in 2007 are held entirely by Belgian shareholders.

The movements of firms into and out of export markets may constitute one of the elements that explain the relative sluggishness in export growth observed during the last few years. Indeed, the development of exports has been negatively affected by the fact that exits from foreign markets have been more numerous than entries. This has led to a decline in the number of exporters in industry during the recent period, the number falling from 2,993 in 2000 to 2,762 in 2007. However, it is worth noting that the majority of firms which withdraw from export markets still remain active on the domestic market during the subsequent years.

This development relates to all foreign markets. However, it masks important differences. It especially reflects changes in the number of firms exporting to other industrialised countries, in particular neighbouring countries. On the other hand, an increase can be observed in the number of firms exporting to emerging markets such as Brazil, Russia, India and China (referred to below as the "BRIC" economies) or indeed the last twelve countries to have joined the European Union. The Chinese market was the one which saw the largest number of new entries of Belgian exporters, in net terms.

In general, the microeconomic data thus bring out a more mixed picture than that appearing by way of the aggregate data. The indicators constructed by means of these data especially bring out the fact that some firms are better fit than others to extend their activities beyond Belgium's frontiers. It has already been pointed out that the firms which manage to break through to external markets are often more productive than those which fail to achieve a lasting position in this regard, but of course other factors may also influence the likelihood of success on foreign markets. One of these is surely the innovative nature of the products offered by the exporters, as the data shown in Table 7 suggest. This

CHART 8 DEVELOPMENT OF THE NUMBER OF EXPORTERS



Source : NBB.

TABLE 7 TYPES OF GOODS EXPORTED TO THE EU15 AND TO THE BRIC ECONOMIES
(data for 2007, unless stated otherwise)

	Firms exporting to the EU15			Firms exporting to the BRIC economies		
	Continuing exporters	New exporters	Exiting exporters[1]	Continuing exporters	New exporters	Exiting exporters[1]
Percentage of firms mainly exporting goods which are:						
labour-intensive (LI)	42.0	38.0	49.9	35.8	31.5	43.3
capital-intensive (CI)	13.1	12.4	9.3	13.4	14.3	6.5
difficult-to-imitate research-intensive (DRI)	13.6	15.6	11.7	19.3	23.2	18.6
easy-to-imitate research-intensive (ERI)	11.7	11.9	10.2	14.8	16.4	11.7
raw-materials-intensive (RMI)	19.6	22.1	18.8	16.8	14.5	19.9
p.m. Number of firms	*1,884*	*849*	*1,045*	*834*	*758*	*506*

Source: BNB.
(1) The proportions included in this column correspond to the situation in 2000.
Note: Exporters regarded here as continuing are those firms which exported in 2000 and 2007. New exporters are those which did not export in 2000 but did in 2007, whilst exiting exporters are those which exported in 2000 but did not in 2007.

contains a breakdown of the population of exporting firms, based on the same grouping by product as that used in the previous section, according to the factors which are mainly used to produce the goods which they export. A distinction is once again applied in this regard between new exporters, exiting exporters and continuing exporters.

In the first place, the differences between these three groups seem to be relatively tenuous. Each of them in fact comprises both firms exporting research-intensive products and firms specialising in the categories of goods where production relies more widely on physical capital or labour. The enterprises mainly exporting innovative products are nevertheless better represented in the group of new exporters, in particular amongst those making their entry into emerging markets. In fact, 39.6 p.c. of these firms export research-intensive goods especially to these markets, whether they are easy to imitate or not, whilst this proportion amounts to 34 p.c. for continuing exporters and 30.3 p.c. in the case of exiting exporters. Conversely, the latter appear more frequently specialised in more labour-intensive products.

Overall, the microeconomic data therefore show that the innovative nature of the products offered by firms contributes to their success on export markets, in particular on emerging markets. This suggests that the reorientation of export activities towards these countries is promoted by a greater specialisation in the production of non-standard goods.

5. Innovation and exports

Exports of products incorporating research and innovation constituted a factor supporting Belgium's overall exports over the period 1995-2008. Maintaining, or improving, the country's position in the world economy certainly means greater specialisation in these products, and in particular in those which are difficult to imitate, and for which Belgium is lagging behind the reference countries. It is useful to see if the Belgian firms show evidence of sufficient innovation in this regard. In the following, innovation is approached from the viewpoint of its importance and its distribution amongst the firms, as well as tangible results flowing from it in terms of marketing of new goods and services on a market-wide scale and of presence on export markets.

The innovation behaviour of firms can be approached through the Community Innovation Survey (CIS). To be implemented every two years since 2004 at the behest of the EC, this survey questions a representative sample of firms – employing at least ten workers – in the European countries about their innovation activities and the different facets of this process (sources, cooperation, effects, obstacles, etc.). An advantage of surveys of this type, being qualitative in nature, is that they draw their information from the source and allow better identification of the behaviour of SMEs with respect to innovation. The non-compulsory nature of the replies and their inherent subjectivity nevertheless require the results to be treated with caution, in particular the classification of countries.

The general picture emerging from these surveys is that the population of firms which undertake innovation activities is relatively wide. Thus, according to the latest available survey relating to the period 2004-2006, 52 p.c. of Belgian firms are considered to be innovative, in the sense that they claim to have introduced a product or process that is new or significantly improved for themselves during the three years preceding the survey. As far as innovation in the whole sector is concerned, Belgium thus occupies second position out of the 29 European countries considered, surpassed only by Germany, which for its part posts a substantially higher rate of 63 p.c. On the other hand, the proportion of innovative firms is only 36 p.c. in the Netherlands. In France, where the survey's scope was limited to industry, the proportion of innovative firms is 59 p.c., which is a figure comparable to that of Belgian industry.

Innovative behaviour is positively correlated with firm sizes: in Belgium, 81 p.c. of firms employing more than 250 workers undertake innovation activities, whilst the proportion is 62 p.c. for medium-sized firms (from 50 to 249 workers) and 49 p.c. for the smallest (less than 49 workers). Compared to the neighbouring countries (with the exception of Germany), Belgian SMEs have integrated innovation into their mode of operation on a wider scale: more of them claim to be innovative, in particular by way of introducing new products or processes, but also by way of new methods of marketing or organisation. The manufacturing sector is more active as regards innovation (60 p.c.) than the services sector (46 p.c.).

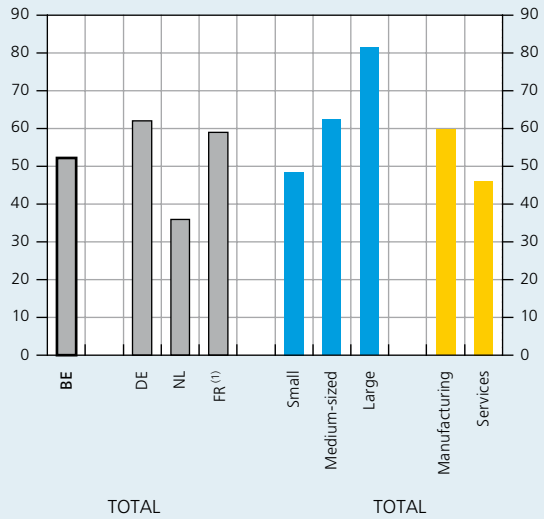
Innovation is a key factor in deployment on external markets. The CIS survey makes it possible to highlight the proportion of firms serving a given geographical market according to whether or not they have carried out innovation activities.

It can be seen firstly that the proportion of firms operating on a market decreases with its distance, except for the innovative industries of manufacturing industry which are more likely to have a pan-European dimension than a purely national one. It is also the case of medium-sized and large firms which are more active on European markets than only on the national market. Whether it is innovative or not, the larger a firm is, the more it will tend to export. Innovative firms always have a proportionally greater presence on distant markets than their non-innovative counterparts. The advantage of innovation in terms of presence on markets other than local or regional ones is more important in manufacturing industry than in services. With regard to manufacturing industry, innovation is crucial in order to penetrate the most distant markets. The advantage of innovation is proportionally more important for large firms and for medium-sized firms which are looking to export to non-European markets.

Innovation should ultimately culminate in bringing innovative goods and services onto the market, in the sense that they incorporate an element of novelty. Innovation is classed as radical when it is at the origin of a good or service that is new not only for the firm, but also for the market as a whole. The rather high proportion of innovative firms in Belgium does not give rise to equally favourable performance in terms of radical innovation. Thus, still on the basis of the CIS survey, only 6 p.c. of the turnover of Belgian firms in manufacturing industry would be derived from the marketing of radically new goods, whereas the percentage is 9, 12, and even 14 p.c. respectively in the Netherlands, France and Germany. On the one hand, this could reflect the behaviour of Belgian firms in the area of innovation: they would be "followers" more than "leaders", both in terms of the products and the markets. The previous CIS survey relating to the period 2002-2004 indicated that those Belgian firms undertaking innovation activities put the emphasis rather more on improving the quality of the products and services offered, whereas in the neighbouring countries, expanding ranges and conquering market shares play a relatively greater role. Such a strategy on the part of Belgian firms is compatible with their intermediate place in the international

CHART 9 DEGREE OF INNOVATION BY FIRMS IN BELGIUM

(percentages of firms claiming to have undertaken innovation activities in each category, 2004-2006)



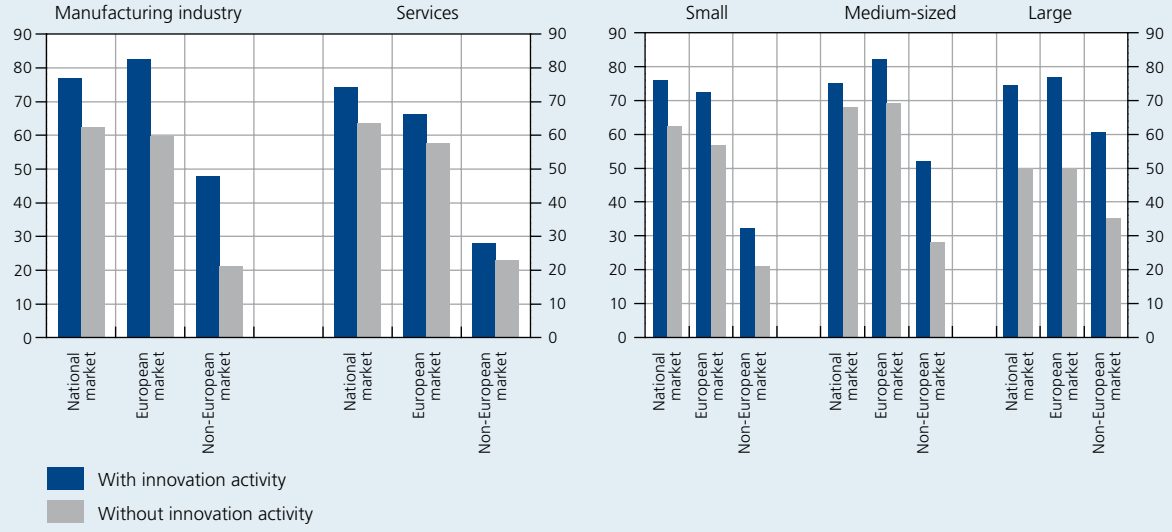
Source: EC (CIS 2006 survey).

(1) Exclusively manufacturing industry.

(2) Small firms employ less than 49 workers, medium-sized firms employ 50 to 249 workers and large firms employ 250 workers or more.

CHART 10 IMPACT OF INNOVATION ON THE INTERNATIONALISATION OF FIRMS IN BELGIUM

(firms operating on various markets (1), in percentages of firms claiming to have undertaken innovation activities or not; breakdown by branch of activity and by size of firm (2); 2004-2006)



Source: EC (CIS 2006 survey).

(1) The reference market is the regional or local market; the national level is the level where firms active in a region other than their own operate whilst still remaining within the national framework; the European market comprises the members of the EU, those of EFTA and also the candidate countries for the EU.

(2) Small firms employ less than 49 workers, medium-sized firms employ 50 to 249 workers and large firms employ 250 workers or more.

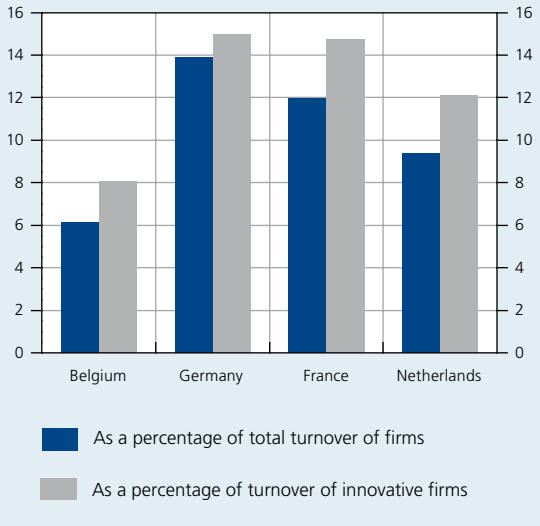
production chain and their wish to maintain it by supplying quality goods and services.

On the other hand, the weakness of radical innovation, in spite of rather high expenditure on innovation in Belgium, could be a sign of the insufficient spread of innovation – and notably of R&D – in the economy. Parallel to the concentration of exports, a concentration of R&D expenditure in large firms can in fact be observed. Thus, during the period 2003-2007, 61 p.c. of the industrial R&D in Belgium was carried out by firms employing more than 250 workers, 23 p.c. by firms employing between 50 and 249 workers and only 16 p.c. by firms employing less than 49 workers. In other respects, the number of firms linked to this expenditure is very limited. Thus, according to the EU Industrial R&D Investment Scoreboard of the EC, which provides an annual listing of the 1,000 firms in the EU that are most active in R&D, a little under forty Belgian firms – the majority of which employ more than 250 workers – alone spent some 2.6 billion euro on R&D in 2007. As a guide, the gross domestic expenditure on R&D by firms in Belgium – comprising Belgian firms and the Belgian subsidiairies of foreign firms – amounted to 3.9 billion euro in 2007.

As in the case of the production process, which is characterised by a growing geographical fragmentation, R&D

CHART 11 RADICAL INNOVATION

(turnover associated with marketing of new products on a market-wide scale, manufacturing industry, 2004-2006)



Source: EC (CIS 2006 survey).

activity is becoming increasingly internationalised, under the influence notably of multinational corporations. This process is particularly evident in Belgium, a country where the economy has long included numerous subsidiaries of foreign companies. Thus, in 2007, around 60 p.c. of the R&D was carried out by firms under foreign control. Foreign funding is dominant – in the sense that it represents more than two-thirds of the total expenditure on R&D by the branch – in chemicals, pharmaceuticals and radio, television and communications equipment and appliances, these being the branches of activity within manufacturing industry that figure amongst the most intensive in R&D.

The concentration of R&D can also be seen at the level of the branch of activity. Firstly, it turns out that R&D remains largely directed towards manufacturing industry, which accounted for 68 p.c. of the expenditure in 2007. Chemicals, with the pharmaceutical industry taking first place within it, accounts for 32 p.c. of the expenditure; then come, in order of importance, manufactures of metals, machines and equipment (12 p.c.); radio, television and communications equipment and appliances (8 p.c.); transport equipment (4 p.c.); and medical, precision, optical and watch-making instruments (2 p.c.). Services collected 30 p.c. of industrial R&D in 2007, which, referred to their weighting in the value added of the economy, represents an intensity of R&D around ten times lower than that of manufacturing industry.

Innovation is therefore a factor that is likely to strengthen the presence of firms on external markets. Moreover, the activities of innovation and exporting exhibit common features, namely that they are strongly concentrated within a limited number of big firms operating largely in the manufacturing industry and as a consequence, insufficiently spread amongst the SMEs and in the services. Belgian firms seem to have difficulty pushing their innovation efforts through to their conclusion, an aspect which culminates notably in insufficient performance in the area of exports with a high technological content. It is therefore on these aspects that economic policies should focus their efforts.

TABLE 8 BREAKDOWN OF FIRMS' INTRAMURAL R&D EXPENDITURE BY BRANCH OF ACTIVITY AND INTENSITY OF R&D IN THE VARIOUS BRANCHES IN BELGIUM

(percentages, 2007)

	Breakdown of firms' R&D expenditure	Intensity of R&D (R&D expenditure / value added)
Manufacturing industry	**68**	**6.2**
Chemical industry	32	15.2
Pharmaceutical products	*25*	–
Chemical products	*7*	–
Metal manufactures, machines and equipment	12	5.6
Radio, television and communications equipment and appliances	8	33.4
Transport equipment	4	5.3
Medical, precision, optical and watch-making instruments	2	19.0
Other manufactures	10	1.8
Services	**30**	**0.6**
Research and development	10	55.9
IT activities and associated activities	5	4.5
Telecommunications	4	2.1
Other services	12	0.2
Other	**2**	**0.4**

Sources: Federal Science Policy, NBB.

Conclusion

The development of exports constitutes an important indicator, along with others, allowing an assessment to be made of how the economy fits into the structural movement of globalisation. The new international fragmentation of the production chain that characterises this movement, as well as the emergence of new economic centres, is giving rise to a proliferation of international trade in which it is appropriate to take part.

Analysis of the period from 1995 to 2008 shows in this regard that Belgium's results remained lower than the average of a wide group of European countries. Some countries, including Germany, the Netherlands and Austria managed to maintain their position in international trade. However, this finding requires qualification. It is true that the rapid build-up of new competitors with an abundant and still inexpensive reserve of labour at their disposal on the one hand, and of wider and wider access to equipment and advanced technology on the other, constitute a major challenge for certain activities that are still relatively important in Belgium. In contrast, the figures also show that those activities that are based on a large content of knowledge and innovation manage to profit from the growth in world demand, notably on the emerging markets. The reallocation of activities within firms and between branches towards those predominantly

incorporating the factors on which the Belgian economy is in a position to differentiate itself – in particular human capital and knowledge – therefore needs to be pursued and deepened.

Even more than the specific categories of product, it is the nature of the production that is decisive. Taking account of the weighting of the factors of proximity and production structure, the traditional markets will continue to be important for Belgium's exports. However, it is a good idea to offer products that are differentiated from those of competitors even on these markets.

However, combining various types of data brings out the fact that regenerating the population of firms active internationally is a difficult matter, due to the strong concentration of exports and innovation activities within large firms. Several conditions need to be met in order to allow a larger number of firms to undertake exporting activities on a profitable basis:

– maintain a reasonable development of production costs – notably labour costs, on which the agents of the Belgian economy have a more direct grip – so as to make it possible for firms to unlock sufficient profitability in order to support their progress;
– encourage wider dissemination effects relating to innovation, between those large firms active within the domain and SMEs. Furthermore, innovation efforts are not giving rise to the marketing of new products on a sufficient scale;
– support the growth of firms and their opening up to the international environment, notably by reducing the fixed costs associated with the tapping of sometimes distant foreign markets, or by promoting contacts with foreign partners both in order to find new outlets and benefit from attractive resources in terms of inputs or technology.

The competitiveness of the economy exceeds the field of investigation examined here in a number of ways. Transactions in goods, which has been the main subject of this article, continue to represent more than 80 p.c. of international trade in goods and services, a proportion which has remained stable over the last few years. However, some categories of service can now be traded equally well at a distance, including those services with a high value-added content. Furthermore, even at the local level, the availability of some services - such as logistical and transport services, financial services and administrative support services, including those provided by the public authorities - is essential in order to organise international trade in goods effectively.

More widely, methods other than trade in goods also enable participation in global economic growth, such as direct foreign investment which makes it possible notably to offer activities that are difficult to transport, especially in the fields of construction and infrastructure (including energy and sustainable development) for which Belgian firms similarly possess trump cards on the international markets.

Moreover, the foundations on which the external competitiveness of the economy should be built are to a large extent the same as those needed to ensure structural and continuing progress of the economy in general terms and to maintain and advance the prosperity of the population.

Annex

Categories	SITC products
Energy products	32 – Coal, coke and briquettes 33 – Petroleum, petroleum products and related materials 34 – Gas, natural and manufactured 35 – Electric current
Medicinal products	54 – Medicinal and pharmaceutical products
Metal products	28 – Metalliferous ores and metal scrap 67 – Iron and steel 68 – Non-ferrous metals
Miscellaneous equipment	714 – Engines and motors, non-electric 718 – Power generating equipment 723 – Civil engineering and contractors' plant and equipment 747 – Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, etc. 752 – Automatic data processing machines and units thereof 771 – Electric power machinery and parts thereof 776 – Electronic lamps, pipes and valves
Telecommunications	76 – Telecommunications
Road vehicles	78 – Road vehicles (including air-cushion vehicles)
Miscellaneous manufactured articles	89 – Miscellaneous manufactured articles
Diamonds	66 – Diamonds
Chemical products	51 – Organic chemicals 52 – Inorganic chemicals
Food	0 – Food and live animals 1 – Beverages and tobacco
Textiles	65 – Textile yarn, fabrics, made-up articles 84 – Articles of apparel and clothing accessories
Other commodities	23 – Crude rubber (including synthetic and reclaimed) 57 – Plastics in primary forms

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Lessons of the *Wage Dynamics Network*

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M. Druant
Ph. Du Caju
C. Fuss

Introduction

The European System of Central Banks (ESCB) sets up temporary networks bringing together researchers from the European Central Bank (ECB) and the national central banks (NCBs) to gain a better understanding of economic mechanisms. The *Wage Dynamics Network* (WDN), active from February 2006 to the end of 2009, was asked to identify the causes and characteristics of wage dynamics relevant to monetary policy and to clarify the link between wages, labour costs and prices at both micro- and macro-economic level. More specifically, the network aimed to answer the following questions: how are wages, labour costs and their components adjusted throughout the business cycle and in response to shocks? Are there any sectoral or regional differences? How often are wages adjusted? Is wage rigidity nominal or real, symmetrical or asymmetrical? What are the causes of wage or labour cost rigidity? How do adjustments to workers' wages affect marginal costs and business decisions on output and prices? How is wage and labour cost rigidity reflected in price rigidity and inflation persistence? What are the factors – such as wage-setting institutions, competition on product markets, and globalisation – which determine the scale and speed of the transmission of labour costs to output and prices?

To answer these questions, the WDN researchers were divided into four groups. The micro group conducted an econometric analysis of wage rigidity and the behaviour of firms on the basis of micro-economic data. The macro group introduced the concept of wage rigidity into macro-econometric models with frictional unemployment. The survey group polled more than 15,000 firms in sixteen European countries. Finally, the meta group coordinated the whole project and aimed to present general conclusions and economic policy recommendations. Altogether, more than 70 researchers, employees of the 25 European NCBs or the ECB and external consultants, took part in the WDN.

The researchers tapped many sources of information, some of which had never been analysed before. The usual macro-economic time series were used for the analyses and the application of macro-economic models. The researchers gathered institutional data specific to the various countries from the labour market specialists of the NCBs. In addition, they relied heavily on micro-economic or individual data obtained from employers or workers. Those data include the annual accounts of firms and their social balance sheets, if available, plus social security administrative data relating to each worker, and existing surveys such as the *Structure of Earnings Survey* (SES), which looks at the structure and breakdown of wages. These micro-economic data are only available for a small number of countries, and do not always permit a perfect international comparison. To supplement the available statistics, the WDN decided to conduct an *ad hoc* wage setting survey covering over 15,000 firms in the period 2007-2008. The largely harmonised results were published in time for sixteen European countries, including eleven euro area members. The questionnaire for Germany was not sufficiently similar to the common model to be used for comparative studies. In order to

assess the labour market's response to the economic and financial crisis, a new questionnaire was sent to the same sample of firms in ten countries during the summer of 2009, but not all replied. The composition of the sample used for the international analysis is presented in Annex 1.

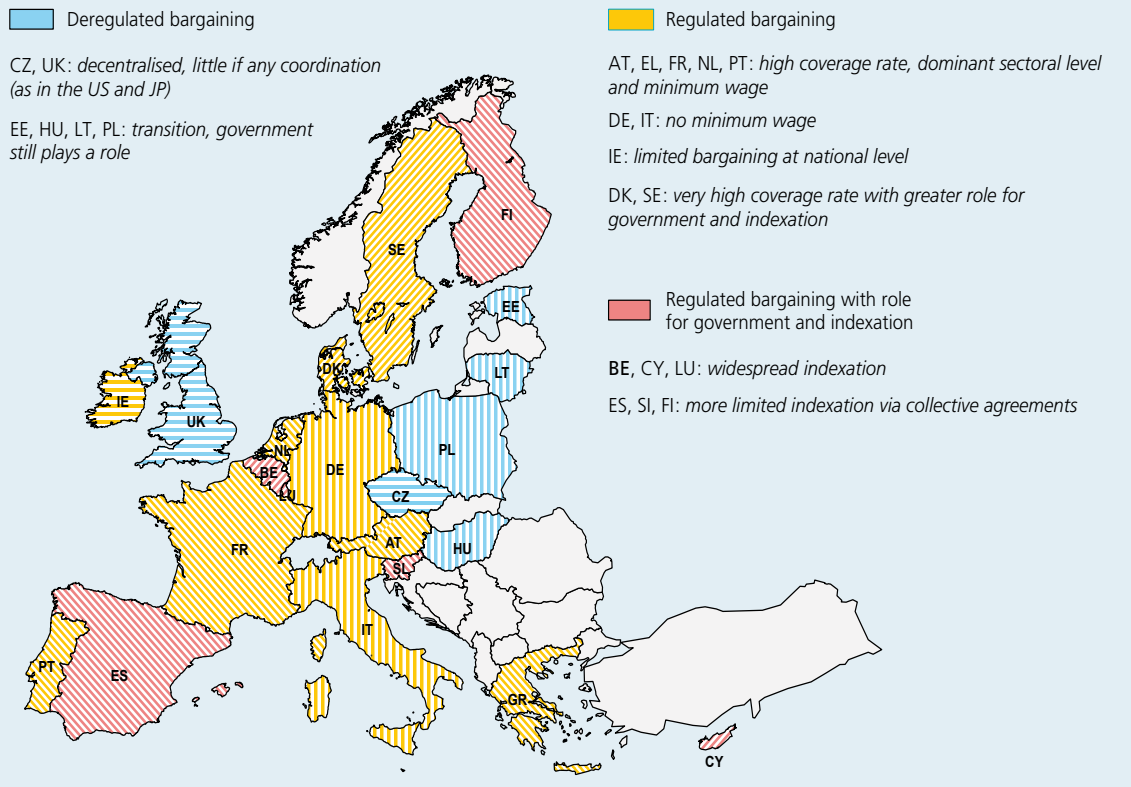
This article aims to give an overview of the main results of the WDN's work and the principal implications for monetary policy. It starts by examining the wage-setting institutions in Europe, and the structure of wages in a number of countries for which data are available, before analysing the network's main micro-economic findings: those relate to the frequency and timing of wage adjustments, the link between wages and prices, indexation mechanisms, wages of both new and experienced employees, and downward wage rigidity. It then examines the implications of these findings at macro-economic level and in terms of monetary policy. The last section focuses on the response of firms to shocks in general and to the crisis in particular. A conclusion follows.

1. Wage-setting institutions and the structure of wages

1.1 Wage-setting institutions

The countries which joined the economic and monetary union no longer have an independent monetary policy or a national exchange rate instrument, and their fiscal policy is subject to the stability pact rules. Consequently, many of the macro-economic adjustments have to be made via the labour market. Institutions play a key role in the way in which wages and employment respond to economic developments. They are therefore a vital feature of the network's conclusions. As an example, a number of the studies examined below highlight the importance of indexation mechanisms and collective agreements, whether concluded within the firm or at a higher level (sectoral, regional or national). The heterogeneous nature of the institutions is therefore a challenge for the common monetary policy, and that challenge will increase when new countries with a different institutional set-up join the monetary union.

CHART 1 HETEROGENEITY OF WAGE-SETTING INSTITUTIONS IN EUROPE



Source : Du Caju et al. (2008).

The WDN sent out a questionnaire on the institutions to the national experts of all the participating European countries plus the United States and Japan. It aimed to gather information on the general institutional characteristics of wage setting in the countries concerned.

This information shows that Europe comprises a mosaic of wage-setting institutions (Du Caju et al., 2008). It is nevertheless possible to group together the countries with a comparable combination of institutions. The first group, which comprises the euro area countries which took part in the survey, has a system of regulated wage bargaining. In other words, the negotiations are subject to rules laid down by the government, by legislation, or by binding agreements. There are nonetheless some differences between the countries in this group. A central group consisting of Austria, France, Greece, the Netherlands and Portugal, applies extension mechanisms – collective agreements are extended to workers and/or firms not involved in the negotiations – and therefore has high coverage rates for the collective agreements, a wage-setting system dominated by the sectoral level and minimum wages. Several countries differ somewhat from this central group. Thus, in Germany and Italy, there is no national minimum wage. Ireland has little bargaining at national level. Denmark and Sweden have higher rates of union membership and coverage. In a sub-group of countries, the government plays a bigger role as a third party or intermediary facilitating the negotiations, and indexation is also more important. Yet there are some divergences within this sub-group. Belgium, Cyprus and Luxembourg apply a system of direct indexation, regulated at national level, while in Spain, Slovenia and Finland the more limited indexation forms the subject of collective agreements. A second group of countries features bargaining with few regulations. The core group here comprises the Czech Republic and the United Kingdom, where bargaining is decentralised and uncoordinated.[1] Since their transition to a market economy, Estonia, Hungary, Lithuania and Poland have introduced radical reforms, although the government still plays a role.

In most countries, the institutions have remained fairly stable over the past two decades, though collective agreements at firm level have gained in importance. They make it easier to align wages with the micro-economic situation.

(1) The United States and Japan are also in this group.

1.2 Wage structure

The Bank's WDN team used the Structure of Earnings Survey conducted by the Directorate General of Statistics and Economic Information (DGSEI) for the purpose of analysing wage differentials between sectors (Du Caju, Rycx and Tojerow, 2011). That survey is based on data relating to around 100,000 workers in Belgium. It revealed that wages vary according to the characteristics of the workers, their job and their employer, namely age, sex, education, occupation, seniority, type of contract, working time and size of firm. Thus, all other things being equal, the highest wages are paid to the oldest workers, men, the most highly skilled, workers in certain occupations (managers, etc.), the most senior workers, full-time workers, employees on permanent contracts and staff of large firms.

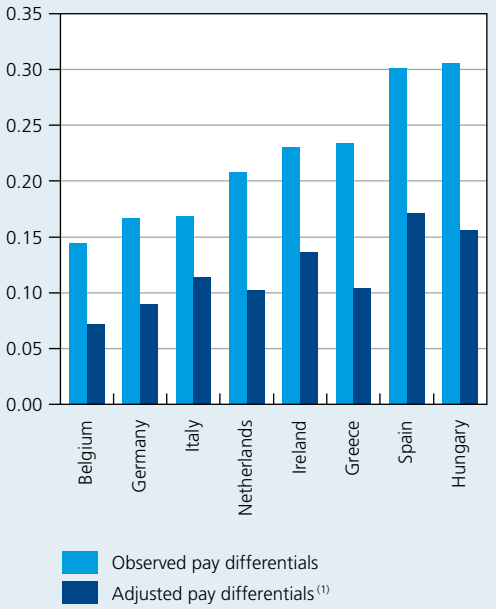
The study draws attention to the existence of significant pay differentials between sectors, even after allowing for the effects of the individual characteristics listed above. In fact, pay differentials between sectors are due partly to employment composition and to the characteristics of the jobs and the firms. Thus, some sectors (such as financial services) have a relatively high proportion of highly skilled workers or bigger firms. Adjusted pay differentials are calculated in order to neutralise the influence of these characteristics. The adjusted pay differentials are clearly less marked, although they are still significant overall. The sectors which pay the highest wages are traditionally the oil industry, the chemical industry, the energy sector and financial services. Lower wages are found in the textile and leather sectors, in retailing, and in the hotel and catering trade. The persistence of these pay differentials shows that non-competitive forces are at work on the labour market.

Rent sharing is one of the factors most frequently mentioned. Using the Belgian data, it is possible to include corporate profits (gross operating surplus per worker) in the analysis as well as the individual characteristics. The results show that the workers' individual wages are undeniably influenced by the profitability of the employer firm, even after adjustment for the influence of the other characteristics relating to the worker or the firm. The dispersion of the adjusted pay differentials in Belgium is about one-third lower if the firms' profits are taken into account. That is irrefutable evidence that a substantial proportion of the pay differentials between sectors is due to rent sharing.

Between 1999 and 2005 there was no sign of any upward or downward trend in the dispersion of pay differentials between sectors. Conversely, pay differentials between sectors are larger during an economic boom. Later we

CHART 2 DISPERSION OF PAY DIFFERENTIALS BETWEEN SECTORS IN 2002

(standard deviation of differentials between sectoral wages and the national average)



Source : Du Caju et al. (2010b).

(1) Adjusted for the influence of age, sex, education, occupation, seniority, employment contract, working time and size of firm.

shall see that the existence of downward rigidity implies that wages are not adjusted downwards during periods of weak economic activity, whereas it is easier to increase them during favourable periods.

A more detailed analysis of the situation in Belgium showed that pay differentials between sectors were attributable partly to the competition which firms encounter on their main markets. Wages are lower in the sectors where competition is keenest, especially if the competitors are based in countries with relatively low income (Du Caju et al., 2010a).

For the purpose of making an international comparison, the WDN experts also have individual wage data from the *Structure of Earnings Survey* covering seven other countries, namely Germany, Greece, Hungary, Ireland, Italy, the Netherlands and Spain. Pay differentials between sectors were examined on the basis of that information (cf. Du Caju et al., 2010b).

The hierarchy of the sectors according to the level of wages paid is comparable in all the countries examined. The standard deviation of these (adjusted) pay differentials, which provides an indication of the dispersion of wages between sectors, or pay inequality, looks relatively small in Belgium and Germany (2002 statistics). In contrast, it is fairly large in Hungary, Ireland and Spain, countries where wage setting is less coordinated.

Since the individual characteristics of the workers, their occupation or their employer, cannot explain the whole of the pay differentials between sectors, the researchers looked for variables specific to the sectors and linked to the level of wages. The pay differentials obtained for these eight countries were therefore combined with sectoral information relating to competition and performance. It appears that, after neutralisation of the influence of individual characteristics, wages are highest in sectors where competition is weakest – notably the energy sector – and those where firms achieve better results and are, in other words, more profitable, such as the oil industry. That finding confirms the existence of non-competitive forces at work on the labour market, implying that workers may be paid higher wages by firms which have market power.

2. Wage and price adjustments

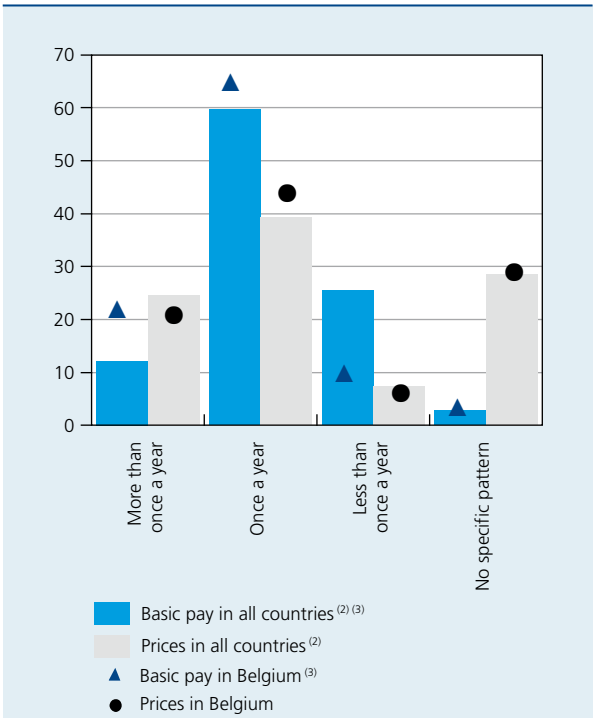
In order to analyse wage dynamics it is essential to obtain an idea of wage rigidity. Moreover, one of the conclusions of the ESCB's previous research network, namely the *Inflation Persistence Network* (IPN), was that sectors and products are decidedly heterogeneous in regard to price rigidity (Altissimo et al., 2006), one reason being the cost structure at the level of the sectors and firms. The IPN showed that prices were adjusted less frequently in sectors where labour costs represented a large percentage of the total cost, such as the service sector. These findings suggested the existence of a link between price and wage rigidity, and more particularly that the observed price rigidity reflected inertia in wage adjustments. The WDN therefore devoted much attention to analysing price and wage rigidity. It developed a number of measures for that purpose : this section discusses the frequency and timing of adjustments. The third section presents the criteria of nominal and real downward wage rigidity.

2.1 Frequency of wage and price adjustments

The frequency of wage and price adjustments is a criterion of rigidity/flexibility. We find that wages do not change frequently, generally only once a year (Druant et al., 2009). On average, of more than 15,000 European firms polled, 60 p.c. adjust wages annually. A quarter of firms do so less often, while 12 p.c. adjust wages more than once a year. Prices are adjusted more frequently : only 40 p.c. of firms make annual changes, and barely 7 p.c.

CHART 3 FREQUENCY OF WAGE AND PRICE ADJUSTMENTS (1)

(percentage of the total number of firms)



Source : Druant et al. (2009).
(1) Results weighted on the basis of employment and scaled by omitting missing replies.
(2) AT, BE, CZ, EE, EL, ES, FR, HU, IE, IT, LT, NL, PL, PT, SI.
(3) Basic pay is equal to fixed salary excluding bonuses.

adjust prices even less often. In terms of implicit duration, that means that wages remain unchanged for 15 months on average, while the average interval between two successive price changes is 9.6 months.

In Belgium, prices are adjusted at a frequency similar to the average for all firms polled, but wages are adjusted more often. In fact, the average frequency is 12.6 months for wages in Belgium while the interval between two price adjustments is 9.9 months. The higher frequency of wage adjustments in Belgium is due to the indexation system, namely the fact that wages are automatically linked to the movement in the health index. Indexation is a key factor leading to regular wage adjustments, but – as will become apparent later – it is not an sign of wage flexibility; rather the reverse. That also points to defects in the use of adjustment frequency measures. Other rigidity/flexibility criteria will be discussed later in the article.

Apart from indexation, other labour market institutions explain some of the differences between countries in terms of wage adjustment frequency. Wages are adjusted more often in firms concluding a collective wage agreement at the level of the firm; conversely, a high coverage rate for collective wage agreements (taking all levels together) and strict employment protection legislation (or EPL) produce the opposite effect. These factors lie behind the considerable heterogeneity between countries in regard to wage adjustments. It is nevertheless noteworthy that no major differences are apparent between the group of euro area countries and the group of countries not belonging to that area, despite the substantial differences between those groups of countries in terms of labour market institutions.

2.2 Timing of wage and price adjustments

Apart from data on adjustment frequencies, the WDN supplies information on the way in which prices and wages react to new circumstances. Thus, it analysed the timing of wage and price adjustments, and more particularly their concentration in certain months. The literature on the subject distinguishes between time-dependent strategies and state-dependent strategies. If the method of setting prices and wages is time-dependent, the adjustment moment is exogenous: it does not depend on the economic situation. If the method of setting prices and wages is state-dependent, then economic conditions do determine the timing of the adjustment. It is important for monetary policy to know which of these strategies lies behind the wage or price policy of firms. In a state-dependent context, prices and wages will react immediately to shocks which are (sufficiently) large, whereas in a time-dependent context firms will still wait until the predetermined time, even in the event of major shocks, and will therefore display more rigid behaviour.

The WDN study provides clear indications that wage adjustments are time-dependent (Druant et al., 2009): 53 p.c. of firms adjust wages in a specific month, while 34 p.c. do so in the case of price adjustments. These time-dependent wage adjustments are more common in euro area countries, where this is the strategy adopted by 61 p.c. of firms. The same percentage was recorded for Belgium (Druant et al., 2008). That finding reflects the great importance of collective wage agreements in the euro area.

Almost 30 p.c. of time-dependent wage adjustments are made in January, and that January-effect is found in all countries. Moreover, price and wage adjustments are synchronised to some extent: in both cases, there is a peak in January. A quarter of Belgian firms adjust wages during that month. In some countries, firms also mention another month in which wage adjustments are concentrated, such

as July in Belgium (12 p.c.) and in France (26 p.c.). This pattern of wage adjustments is attributable to the fact that collective wage agreements generally take effect at the same time, and to wage indexation. For instance, in France minimum wages are indexed in July, triggering the adjustment of other wages. In Belgium, the wages of almost 60 p.c. of workers are indexed at fixed intervals. The commonest frequency is one year – which accounts for the January peak – but half-yearly indexation is also common – hence another peak in July – and so is quarterly indexation, producing additional smaller peaks in April and October.

2.3 Link between wage and price adjustments

In analysing the link between wages and prices, the WDN did not only examine the timing of the adjustments but also considered whether wages are reflected in prices, and whether that is significant.

The survey contained a question on firms' response to a widespread and unexpected increase in labour costs. Almost 60 p.c. of firms would react to such a shock by increasing prices (ECB, 2009). A similar proportion of firms would cut their costs, while a smaller percentage would reduce their margins or cut production. Belgian firms' behaviour is largely in line with these findings: cost reduction is the commonest strategy (67 p.c.), even though 60 p.c. of participants mention price adjustments (Druant et al., 2008). As is the case, on average, for all countries, half of the Belgian firms polled reduce their margins, whereas barely one-tenth cut production.

It is mainly in firms where labour costs represent a high percentage of total costs that wages have a big impact on prices. The factors which moderate the transmission are fierce competition, a high percentage of exports, and the firm's size. Firms facing stiff competition or obtaining a large proportion of their turnover from exports, and therefore active on a competitive foreign market, are less inclined to adjust prices if a shock affects their labour costs. In fact, both a price cut or a price rise could be detrimental to their profitability, the first on account of the pressure which it would place on profit margins, and the second in view of the fall in turnover. Firms with a large workforce have other ways of adapting, e.g. by cutting the volume of labour or reducing costs other than labour costs.

The evidence obtained from the survey results are more difficult to reproduce on the basis of a micro-economic analysis. The elasticity of prices and wages seems to be fairly low, and the transmission of intermediate input prices outstrips that of wages.

TABLE 1 REACTION TO A PERMANENT RISE IN LABOUR COSTS[1]

(firms replying "important" or "very important", as a percentage of the total)

	All countries[2]	Belgium
Reduce costs	59.0	66.9
Increase prices	59.2	62.2
Reduce margins	49.8	50.0
Cut production	22.5	11.5

Sources: Druant et al. (2008), ECB (2009).

(1) Results weighted on the basis of employment and scaled by omitting the missing replies.

(2) AT, BE, CZ, EE, EL, ES, FR, HU, IE, IT, LT, NL, PL, PT, SI.

2.4 Indexation of wages in line with inflation

Examination of the link between wages and prices automatically raises the question of the extent to which inflation determines wages. The definition of the concept of wage indexation, and hence how to measure it, was hotly debated by the network, because the absence of any formal wage indexation mechanism does not mean that wage policy takes no account of inflation.

Two studies conducted by the WDN, namely the survey on wage setting by firms (Druant et al., 2009) and the survey of the institutional characteristics of wage bargaining mechanisms (Du Caju et al., 2008), make this clear.

The survey contained a question asking whether the firms have a wage policy whereby inflation determines adjustments to basic pay. There could be either a formal automatic link or a policy which takes informal account of the rise in consumer prices.

An automatic link is fairly unusual in Europe. It operates in Belgium, where it is applied by 98 p.c. of firms, and in Luxembourg, Spain and Cyprus.[1] In the other countries, whether or not they belong to the euro area, inflation is generally taken into account informally during wage bargaining. On average, the internal wage policy of one-third of firms consists in adjusting basic wages in line with inflation. That is true for both the group of countries in the euro area and those outside it.

(1) Cyprus is not included in the table because the survey was conducted later and the data are not entirely comparable.

TABLE 2 FIRMS WHICH PURSUE A POLICY OF ADJUSTING BASIC PAY IN LINE WITH INFLATION [1]

(percentage of the total number of firms)

	Automatic link	No formal rule, but inflation is taken into account	Total [2]
All countries [3]	17.5	19.9	36.3
Euro area countries [4]	20.8	16.0	35.7
Belgium, Luxembourg and Spain	66.6	11.5	78.1
Other countries	8.2	17.1	23.9
Countries outside the euro area [5]	8.7	30.0	38.1

Source: Druant et al. (2009).

(1) Results weighted on the basis of employment and scaled by omitting missing replies. Basic pay is equal to fixed salary without bonuses.

(2) As some firms use various methods of adjustment in line with inflation, the total does not necessarily equal the sum of the two methods.

(3) AT, BE, CZ, EE, EL, ES, FR, HU, IE, IT, LT, LU, NL, PL, PT, SI.

(4) AT, BE, EL, ES, FR, IE, IT, LU, NL, PT, SI.

(5) CZ, EE, HU, LT, PL.

That percentage may underestimate the influence of price movements on wage setting. The results of the study of the institutional characteristics of wage bargaining mechanisms in fact show that inflation plays a key role in wage bargaining in all the countries considered. Productivity, competitiveness, taxation and parafiscal levies are also explicitly mentioned, though to a lesser extent.

3. Nominal and real downward rigidity

The above results concerning the frequency of adjustments to prices and nominal wages suggest that, in the short term, price rigidity combined with nominal wage rigidity leads to real wage rigidity. Given the importance of wage rigidity for the dynamics of employment and inflation, and for monetary policy, the WDN conducted supplementary studies. These provided alternative measures of wage rigidity and an analysis of its causes.

3.1 Wage rigidity affects existing employees ...

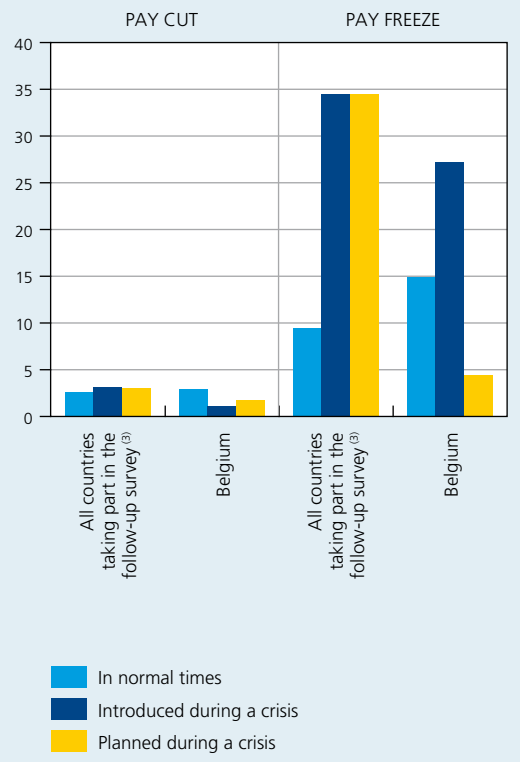
The first WDN survey of firms, conducted in 2007, reveals strong resistance to reductions in the wages of existing employees (Babecký et al., 2009a). The resistance to wage reductions may be reflected in a wage freeze. In fact, only 2.6 p.c. of firms introduced wage cuts in the five years preceding the survey, and 9 p.c. of firms applied a nominal wage freeze.

The survey also asked firms what causes them not to reduce wages when the economic situation requires (Babecký et al., 2009c). It seems that the main reasons are the potential impact on the workers' morale, their effort, and hence their productivity, and fears that some of them may leave the firm. Almost nine out of ten firms consider these factors to be important or very important. The same factors recur in similar surveys conducted in the United States (Bewley, 1999). These findings leave little scope for structural reforms designed to increase downward wage flexibility. Yet it should be noted that, in European countries, a third reason mentioned by firms concerns institutional restrictions resulting from collective agreements or the existence of specific wage regulations. For example, in Portugal the law prohibits reductions in nominal wages.

The results of the follow-up survey indicate that the percentage of firms cutting wages increased only slightly, from 2.6 to 3.2 p.c., during the economic and financial

CHART 4 FIRMS REPORTING A BASIC PAY CUT OR PAY FREEZE [1]

(percentages of the total number of firms [2])



Sources : WDN, NBB.

(1) Results weighted on the basis of employment and scaled by omitting missing replies. Basic pay is equal to fixed salary without bonuses.

(2) The same sample of firms was used for both surveys.

(3) AT, BE, CZ, EE, ES, FR, IT, LU, NL, PL.

crisis. That is borne out by the macro-economic statistics, which indicate that there was little change in nominal wages. In contrast, the percentage of firms stating that they had imposed a wage freeze went up from 9 to 35 p.c. Moreover, 35 p.c. of firms stated that they intended to freeze wages in the future. These trends are also evident in Belgium although the increase in the wage freeze is weaker there. The percentage of Belgian firms reporting a wage freeze was almost twice as high during a crisis (27 p.c.), compared to a normal situation (15 p.c.), whereas the figure tripled for countries as a whole. In contrast to other countries, only a small percentage of Belgian firms stated that they intended to freeze wages in the future.

3.2 ... but also new recruits

Economic theory clearly states that corporate profit optimisation depends on the marginal cost, which in turn depends on the newly recruited worker. Moreover, most research work on this subject has shown that, in normal times and in the absence of any specific measures[1], labour adjustments tend to be made more by varying employment than by changing the number of hours worked per person. In this context, wages of new recruits become one of the determinants for hiring staff. Lastly, since incumbent workers' wages have a strong downward rigidity, those of newly recruited workers could play a major role in wage flexibility. However, macro-economic estimates indicate that wage rigidity in the case of new recruits is broadly similar to that for existing employees. Estimates based on micro-economic wage data do not so far allow an unequivocal conclusion, and cover only a small number of countries[2].

The WDN survey examined the strategies which firms use to cut their labour costs, and the factors determining the wages of new recruits. It emerges that if firms can take on cheaper workers to replace employees leaving voluntarily or retiring, that is mainly because of a labour force composition effect, e.g. where older employees are replaced by younger staff. This strategy is common in Belgium, as it is in France and Italy, combined with the use of early retirement. It is more often adopted by large firms and those facing strong competition (Babecký et al., 2009b).

(1) The specific working time reduction measures taken during the economic recession are discussed in section 5.2.
(2) Two WDN studies examine these questions (Carneiro et al., 2009; and Carlsson et al., 2009). In Portugal, the results show that the wages of new recruits are twice as sensitive to the national unemployment rate as the wages of existing workers. However, in Portugal as in Sweden, the reaction of wages to productivity is similar, albeit slightly stronger, in the case of new recruits.
(3) In Belgium, 52 p.c. of firms state that the wages of new recruits are set according to the wages of workers at the same level in the firm, and 34 p.c. according to sectoral collective agreements.
(4) On the basis of the survey results for a small number of countries: Germany, Estonia, Greece, Hungary, Italy, Poland, the Czech Republic and Slovenia.

Conversely, in the majority of cases, new recruits are paid according to the same pay scale as the firm's existing employees with the same level of experience, or in accordance with collective agreements.[3] In fact, fewer than 15 p.c. of firms in the euro area and 36 p.c. of firms in countries outside the euro area would pay new recruits less than the wages of existing employees with a comparable level of experience (Galuscak et al., 2010).

The main reason,[4] mentioned by over 80 p.c. of firms, for not deviating from their internal pay scale when taking on new staff concerns considerations of fairness and the potential negative impact of such a move on the employees' morale and effort.

3.3 Heterogeneity of downward wage rigidity

The above findings reveal some resistance to nominal wage reductions. However, a distinction must be made between nominal and real wage rigidity. One of the factors restricting the scope for varying real wages concerns wage indexation: in the absence of indexation, nominal wage rigidity leads to real wages being adjusted in the opposite direction from prices.

Two types of measures were used to assess the degree of downward wage rigidity. The first is based on individual wage data (Du Caju et al., 2007, 2009; and Messina et al., 2009). It defines downward nominal wage rigidity (DNWR) as the percentage of workers whose nominal wages do not decline, whereas they would have been reduced in the absence of rigidity. This constraint leads to the freezing of many workers' nominal wages. Downward real wage rigidity (DRWR) is defined as the percentage of workers whose wages at least keep pace with the reference inflation rate, whereas they would have been reduced in the absence of rigidity.

The second measure of wage rigidity is based on the results of the survey of firms (Babecký et al., 2009a). Downward nominal wage rigidity is measured by the percentage of firms which froze wages during the five years preceding the survey. Real wage rigidity is measured by the percentage of firms reporting a significant link between wage adjustments and inflation. There is a positive correlation between the measures based on the survey and those based on individual wage data, although they are difficult to compare.

Overall, the results indicate that the dominant type of wage rigidity in Europe is real rigidity. On average, 17 p.c. of firms are subject to DRWR, compared to 10 p.c. for DNWR. The euro area countries exhibit greater real rigidity

TABLE 3 HETEROGENEITY OF DOWNWARD WAGE RIGIDITY

	DRWR [1]			DNWR [2]		
	Minimum	Average	Maximum	Minimum	Average	Maximum
All countries [3]	1.7 (IT)	17.1	98.2 (BE)	2.4 (ES)	9.6	26.5 (CZ)
Euro area countries [4]	1.7 (IT)	20.6	98.2 (BE)	2.4 (ES)	8.1	23.2 (NL)
Countries outside the euro area [5]	4.4 (EE)	8.5	23.5 (SI)	2.9 (SI)	13.4	26.5 (CZ)
p.m. Belgium		*98.2*			*11.8*	

Source: Babecky et al. (2009a).
(1) DRWR: percentage of firms where the link between wage adjustments and inflation is significant.
(2) DNWR: percentage of firms freezing wages in the past five years.
(3) AT, BE, CZ, EE, EL, ES, FR, HU, IE, IT, LT, NL, PL, PT, SI.
(4) AT, BE, EL, ES, FR, IE, IT, NL, PT, SI.
(5) CZ, EE, HU, LT, PL.

(DRWR) than nominal rigidity (DNWR). Conversely, countries not belonging to the euro area see more DNWR than DRWR.

Real wage rigidity is linked to indexation mechanisms, be they formal mechanisms like those in Belgium, or informal links whereby inflation is taken into account in wage bargaining. Nominal wage rigidity can be attributed to the influence of collective bargaining, plus employment protection. One explanation for this correlation is that workers are less inclined to accept pay concessions when the redundancy situation is more favourable to them, i.e. if there is little fear of job losses.

Overall, the results show that the type of wage rigidity varies significantly, even within the euro area. Nominal rigidity prevails in Austria, Germany, Greece, Italy, the Netherlands and Portugal, whereas real rigidity dominates in Belgium, Finland, Luxembourg Spain and Sweden. Other countries feature a mix of real and nominal rigidity. The heterogeneity of downward wage rigidity between euro area countries has considerable implications for the impact of the common monetary policy on national economies, as will be explained in the next section.

4. Lessons of New-Keynesian models and macro-economic implications

4.1 Presentation of the model

Smets and Wouters (2003, 2007) constructed and estimated a New-Keynesian reference model which combines nominal and real frictions in order to faithfully reproduce the dynamics of seven basic macro-economic series: GDP, consumption, investment, wages, inflation, key interest rate and employment. However, in regard to the WDN's aim, this model suffers from an over-simplistic representation of the labour market. It is a market without friction, and with only voluntary unemployment. De Walque et al. (2010a) developed a variant of this model by combining the model of Smets and Wouters with a labour market featuring frictional unemployment. In this model, firms and workers negotiate nominal wages. However, the wages of existing employees are not renegotiated in each period; there is only a degree of probability that such negotiations will take place. Similarly, newly recruited workers may either be paid at the wage prevailing in the firm which takes them on, or negotiate their wages with the firm under the prevailing macro-economic conditions. Wages which are not formally negotiated are partially indexed to past inflation. The aggregate real wage is the arithmetical mean of wages in the economy, or in accordance with the above description:

$$w_t = \frac{n_{t-1}}{n_t}(1-\rho)\left[\left(1-\xi_w^o\right) + \xi_w^o w_{t-1}\frac{\pi_{t-1}^{\gamma}\bar{\pi}^{1-\gamma}}{\pi_t}\right] + \frac{m_t}{n_t}\left[\left(1-\xi_w^n\right)w_t^* + \xi_w^n w_{t-1}\frac{\pi_{t-1}^{\gamma}\bar{\pi}^{1-\gamma}}{\pi_t}\right] \quad (1)$$

where
- w_t is the aggregate real wage at time t
- n_t is the number of employees and m_t is the number of new recruits
- ρ is the separation rate,[1] assumed to be constant during the year

(1) The separation rate is the average over the estimation period of the flow of persons from an employment situation to an unemployment situation, as a ratio of the number of workers.

– w_t^* is the negotiated wage at time t
– ξ_w^o is the probability that an existing employee's wage will not be renegotiated
– ξ_w^n is the probability that a new recruit's wage will not be negotiated
– π_t is price inflation at time t and $\overline{\pi}$ is long-term price inflation
– γ is the degree of indexation of wages not renegotiated in line with past inflation

Estimation of this model's parameters (de Walque et al., 2010b) for quarterly aggregate data[1] on the euro area yields values in line with the micro-economic studies and surveys conducted by the WDN and described above. Thus:
– each quarter, 36.6 p.c. of wages are renegotiated: that figure implies that negotiated pay reviews take place on average every 4.4 quarters. That is comparable to the 15 month period calculated on the basis of the survey;[2]
– a similar percentage of new employees (37 p.c.) negotiate their wages, which means that if new employees are given the opportunity to negotiate their wages, that is purely because the firm taking them on engages in wage bargaining with all its employees. This confirms that the wages of new recruits are determined by the wages currently prevailing in the firm which takes them on;
– the degree to which non renegotiated wages are indexed to inflation is 0.364, which means that the 36.4 p.c. of firms/workers who do not engage in wage bargaining, nominal wages are adjusted in line with the inflation recorded in the preceding period. That percentage is totally in accordance with the survey findings, which indicated that 36.3 p.c. of firms adjust wages in line with inflation.

4.2 Lessons of the model

As explained at the beginning of section 3 and very clearly illustrated by Knell (2010) with the aid of a theoretical model, real wage rigidity is the outcome of the combination of nominal rigidities on the market in goods and services and on the employment market. Two opposing examples can be used to illustrate this. If wages are renegotiated in each period, they are perfectly flexible and are adjusted to recorded inflation so that real and nominal wages coincide. If prices are freely adjusted in each period, relative prices are constant in the model so that the concept of inflation disappears, and nominal and real values coincide.

The New-Keynesian Phillips curve formalizes the latter reasoning:

$$\hat{\pi}_t = \beta \cdot E_t \hat{\pi}_{t+1} + \kappa \cdot \hat{x}_t \qquad (2)$$

where
– $\hat{\pi}$ is the deviation of inflation from stationary equilibrium
– β is a discount rate
– E is the expectations operator
– κ is a parameter dependent on the probability of price adjustments
– $\hat{x}$ is the marginal cost expressed as the deviation from the stationary equilibrium

Since wages are an essential component of production costs, it is immediately evident that inflation persistence is attributable partly to nominal price rigidity (κ) and partly to the more or less smooth profile of the reaction of the marginal cost $\hat{x}_t$ to an unexpected shock.

However, the marginal cost, i.e. the cost of producing one additional unit, does not depend on the aggregate labour cost but on the cost of the unit of labour to be taken on in order to make that additional unit. This means that the main explanatory factor for the marginal cost is the wage of the newly recruited workers.

Chart 5 shows for three variables (inflation, real wages and working hours) the percentage change compared to the equilibrium situation following an unexpected 1 percentage point cut in the central bank's key interest rate. The reaction calculated for the estimated model is shown in pale blue, while – for comparison – an economy which is identical to the first except for the degree of flexibility in the wages of new recruits is shown in dark blue. The chart shows these reactions after 1, 2 and 3 years. It is perfectly clear that, although the new recruits represent only a small percentage of the wage bill, the fact that their wages are fixed according to macro-economic conditions (dark blue) or according to the remuneration prevailing in the firm which takes them on (light blue) implies a crucial difference in terms of the volatility of inflation and of real aggregate wages. In the first case (dark blue), new recruits take advantage of the favourable macro-economic conditions generated by the cut in the key interest rate to negotiate higher wages. That has a direct impact on the marginal cost $\hat{x}_t$ and hence on inflation. That inflation is taken into account by the existing workers who have the opportunity to renegotiate their wages. Since the

(1) This still concerns the seven basic macro-economic series (GDP, consumption, investment,, wages, inflation, key interest rate and employment). The sample covers the period from 1990Q1 to 2008Q4.
(2) The probability that wages will be negotiated is converted to an average period between two sets of negotiations on the basis of the method described in Dixon and Kara (2006) in order to compare contracts with a fixed probability of reoptimisation (Calvo, 1983) with contracts having a constant term (Taylor, 1980).

proportion of those workers is estimated at around one-third, this has a major impact on aggregate real wages. So in this case, inflation and real wages react strongly but not very persistently. The opposite occurs if new recruits do not negotiate their wages and instead receive wages which were negotiated in the past. It should be noted that the parameter ξ_w^n – probability that the wages of a new recruit will not be negotiated – is essential to reproduce the observed rigidity of real wages and the observed inflation persistence. Conversely, its effect on the volatility of the real sector of the economy is far less significant, as is evident from the smaller difference in the reaction of working hours between the two scenarios.

The indexation of wages to inflation is generally viewed as a key element in real wage rigidity since it prevents inflation from affecting the real remuneration of labour. The effect of indexation can again be seen with the aid of the New-Keynesian model described above. Chart 6 presents the reaction of the same three variables as before to a 1 p.c. fall in productivity[1] if the degree of indexation is as estimated, namely 36.4 p.c. For comparison, an economy in which wages are 100 p.c. indexed to past inflation is shown in dark blue.

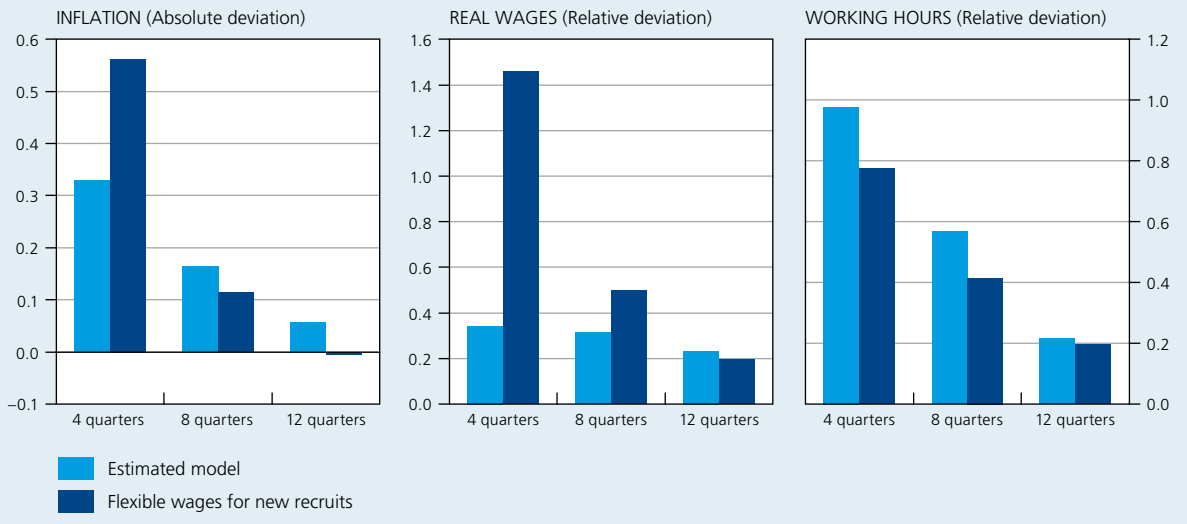
(1) This example can be interpreted as an unexpected rise in the costs of intermediate goods required for production (energy, commodities, etc.).

For all types of shocks (supply, demand, monetary policy, etc.) full wage indexation increases both the volatility of inflation and its persistence, by generating what are known as second round effects: the transmission of inflation to wages via indexation affects the marginal cost, which drives up inflation via the New-Keynesian Phillips curve (see equation (2)). For the type of shock considered here, namely a fall in productivity, a shock to which prices and wages react in opposing directions, the strong reaction of inflation caused by stronger indexation prevents the decline of real wages and therefore increases real wage rigidity. By preventing real wages from being adjusted downwards, indexation transfers the adjustment of the economy to its real component, namely employment and working hours.

Other factors relating to labour market institutions play a role in determining real wage rigidity. Thus, when negotiating wages, firms and workers take account of factors which are influenced by the business cycle (labour market tensions, expected inflation, etc.) but also of reserve wages, i.e. the level of wages below which an unemployed person will not accept a job, that remains unchanged overall. Therefore, replacement incomes which are generous in both value and duration increase the workers' reserve wages and limit the change in wages throughout the cycle. Similarly, if the workers have little bargaining power, they will be less able to take advantage of cyclical improvements in the macro-economic situation,

CHART 5 REACTION TO AN UNEXPECTED 1 PERCENTAGE POINT CUT IN THE CENTRAL BANK'S KEY INTEREST RATE

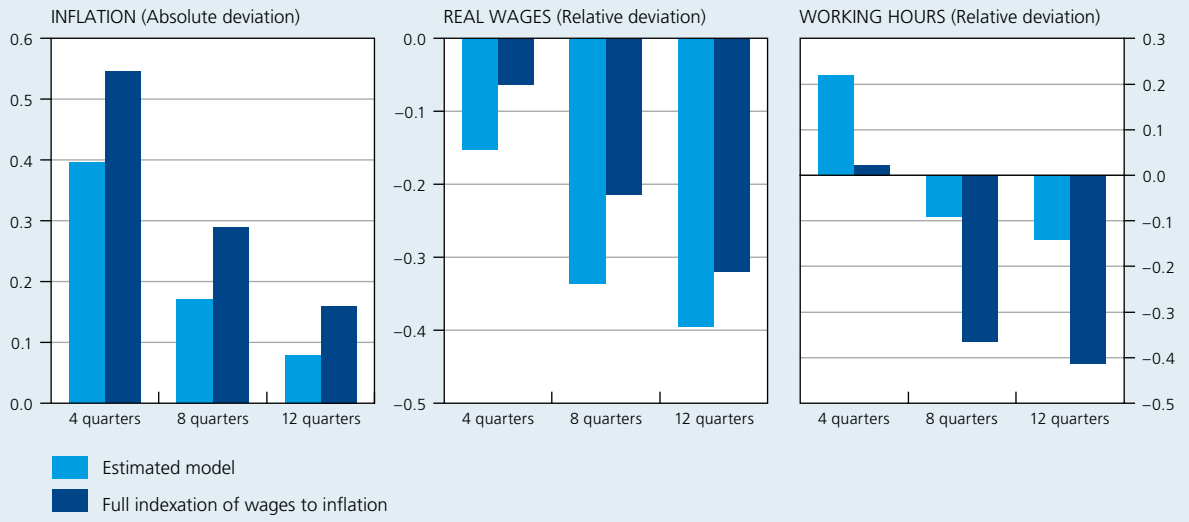
(percentage deviation from equilibrium)



Source : NBB, based on de Walque et al. (2010b).

CHART 6 REACTION TO AN UNEXPECTED 1 P.C. FALL IN PRODUCTIVITY

(percentage deviation from equilibrium)



Source : NBB, based on de Walque et al. (2010b).

further limiting the pro-cyclicality of wages. The level of worker protection may also influence wage rigidity. By strengthening the workers' bargaining power in times of weak economic activity, it makes them less inclined to accept wage concessions.

4.3 Macro-economic implications

As illustrated by chart 6, real wage rigidity greatly increases the volatility of working hours and heightens inflation persistence. It complicates the conduct of monetary policy by emphasising the choice between employment and price stability. By generating persistent inflation expectations, real wage rigidity increases the cost of fighting inflation in the event of price shocks. That makes it all the more important to ensure firm anchoring of inflation expectations. Moreover, as the ECB's sole objective is price stability, real wage rigidity underlines the need to adopt a medium-term view of that objective in order to avoid excessive volatility of interest rates and of real activity.

Chart 6 illustrates very clearly that in an economy where real wages display strong downward rigidity – e.g. as a result of strong wage indexation in line with inflation – prices react more strongly to a productivity shock. Consequently, in a monetary union, countries with institutions which engender more real wage rigidity will suffer from a persistent decline in competitiveness in the event of a common shock. That loss of competitiveness will then have an even bigger impact on the real economy in those countries (Fahr and Smets, 2009).

Economists have long argued that price inflation should be slightly positive rather than strictly zero. That is due to the downward rigidity of nominal wages. The purpose of this modest inflation is to greese the wheels of the economy by allowing real wages to be adjusted downwards in the event of a shock, even though nominal wages are rigid. That argument becomes irrelevant in the face of real downward wage rigidity. Clearly, the greater the downward rigidity of real wages, the lower the optimum inflation rate. Fagan and Messina (2009) calculated the optimum inflation rate for economies calibrated in order to represent the labour market characteristics of certain countries. For the United States, the optimum rate was calculated at between 2 p.c. and 5 p.c. according to the data used. Owing to the stronger nominal price rigidity and the significant downward real wage rigidity, the optimum inflation rate for the euro area as a whole is lower than in the United States, at just under 2 p.c., in line with the ECB's inflation target. If the euro area's labour market had the same characteristics as that of Belgium or Finland, that optimum rate would fall to 0 p.c.

5. Reaction to adverse economic shocks

It is clear from the foregoing that the wages of both existing employees and new recruits undergo only minor downward adjustment if the need arises, and that this has serious implications in terms of employment. The WDN examined the reaction of firms to adverse economic shocks, an analysis topic which became particularly relevant at the time of the economic and financial crisis, when declining turnover was the principal feature.

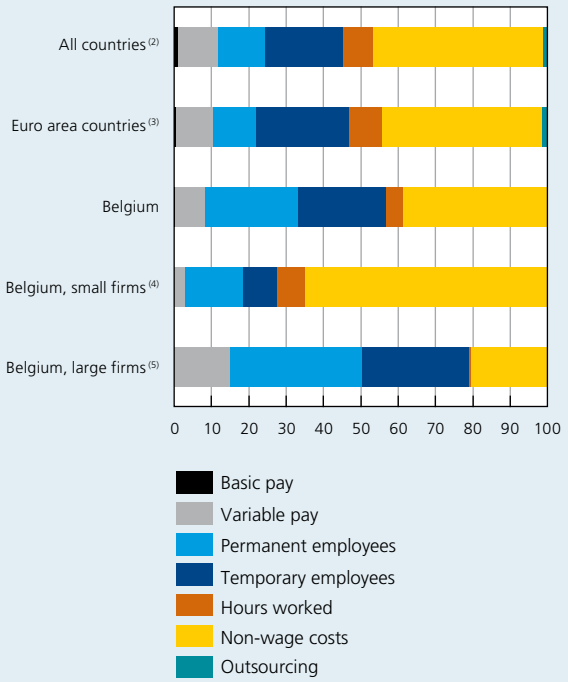
5.1 Reaction in normal times

5.1.1 Adjusting wages as opposed to employment

The 2007 survey focused in particular on the way in which each firm reacted to three types of adverse shocks: a decline in demand for its products/services, a rise in the cost of intermediate inputs, and a generalised increase in labour costs. In these three cases, firms usually adopt a strategy of cutting costs. Taking the average for the three shocks, almost 70 p.c. of firms consider that strategy to be important or very important. Almost 60 p.c. would adjust prices, whereas cutting margins or output was said to be less important.

CHART 7 COST-CUTTING STRATEGIES (1)

(percentage of the total number of firms)



Source : Dhyne and Druant (2010).

Results weighted on the basis of employment and scaled by omitting the missing replies.

(1) AT, BE, CZ, EE, EL, ES, FR, HU, IE, IT, LT, NL, PL, PT, SI.
(2) AT, BE, EL, ES, FR, IE, IT, NL, PT, SI.
(3) From 5 to 19 employees.
(4) 200 or more employees.

Firms which adjust their costs in response to a shock were also asked to specify the strategy used. On average for the three shocks, 45 p.c. of the 15,000 firms polled cut their non-wage costs. 33% of firms reduce their workforce (both permanent and temporary staff). In accordance with the downward wage rigidity described above, they rarely cut wages, either basic pay or the variable pay component. Barely 10 p.c. of firms cut working time.

In Belgium, firms also respond to shocks mainly by cutting their costs. That applies to 72 p.c. of them. However, they do so primarily by reducing the number of permanent and temporary workers (50 p.c. of firms) and - to a lesser extent than the average for all countries – by cutting non-wage costs (39 p.c. of firms). Wage adjustments and reductions in working time are also used less frequently. There are clear differences according to the size of the firm's workforce. Thus, there is a marked positive correlation between firm size and the adoption of an employment adjustment policy: the bigger the firm, the greater the staff reduction. Conversely, the link between firm size and changes in non-wage costs is negative. Large firms in fact have more scope than small ones for cutting their workforce in the face of problems. That is probably why small firms are more likely to resort to cutting working time. Adjustment of the variable pay component is the approach most commonly used in firms which pay more bonuses, on average, namely large firms.

A more detailed analysis (Dhyne and Druant, 2010) shows that the difference between Belgium's reaction and that of the other countries is significant and can be attributed to various factors, most of which constitute wage rigidities. More particularly, this concerns the fact that wages are largely set at a level higher than the firm (98.3 p.c. in Belgium, compared to 65.8 p.c. for all countries), the high coverage rate of collective wage agreements (89.1 p.c. against 60 p.c.), and the fact that almost all wages are inflation-linked (98.2 p.c. against 36.3 p.c.). Other factors which may explain the greater use of the employment channel in Belgium are the slightly higher share of labour (37.5 p.c. against 35 p.c.), the small share of the variable pay component in total labour costs (7.7 p.c. against 12.6 p.c.), the large proportion of the workforce consisting of low-skilled manual workers (49.6 p.c. against 41.2 p.c.), a category of workers who are generally cheaper to make redundant, and the relatively flexible

dismissal laws (1.7 on a scale ranging from 0 to 4; compared to 2.5).

Other factors tend to safeguard employment in Belgium. Thus, the proportion of small firms (employing fewer than 50 workers) comes to 67 p.c., compared to 49.1 p.c. for all countries. As stated earlier, small firms in fact have less scope for cutting their workforce when problems arise. Moreover, small business owners may be unwilling to make staff redundant owing to the close working relationships with their staff. They look for other solutions, such as cutting non-wage costs, while waiting for things to improve.[1] Furthermore, the process of wage-setting in Belgium comprises mechanisms which make wages less rigid, thus protecting jobs. The wage cushion – the amount which firms pay on top of the sectoral pay scales (72.7 p.c. of them) – gives them some scope for adjusting actual wages in line with economic conditions, if necessary.

The results of the Belgian survey are borne out by a quantitative assessment based on individual remuneration data and data on firms for the period 1997-2001.

The growth of the wage bill of each firm was broken down into four components: (1) increase in wages of existing workers, (2) wage differential between new recruits and workers leaving the firm, (3) increase in the total number of days worked by existing employees, and (4) difference between days worked by new recruits and by workers leaving. The last two components together represent the growth of employment measured in terms of the number of days worked.

The analysis shows that, on average, both wage increases (3.7 p.c. – 1.4 p.c. = 2.3 p.c.) and fluctuations in employment (0.7 p.c. + 2.4 p.c. = 3.1 p.c.) account for changes in the wage bill (+5.4 p.c.).[2] For firms whose wage bill increased, the rise was due more to increases in employment than to changes in wages. Where the wage bill declines, employment bears the brunt of the adjustment. The elements in this breakdown in fact reveal that contractions in the wage bill are due to reductions in employment despite the nominal wage increases of existing workers; the contribution of the wages of new recruits remains negative. It should be noted that in the case of both reductions and increases in the wage bill, the nominal wages of existing workers rose by at least 3 p.c., on average. This reflects such factors as increases due to indexation, as well as real negotiated increases.

(1) The results shown are only valid if the shock is insufficient to drive firms into bankruptcy. Since this is a one-off survey, it is not possible to control for the bankruptcies, which affect proportionately more small firms, being generally more sensitive to the business cycle.
(2) On average, new recruits are paid about 15 p.c. less than existing workers. That difference is due, in particular, to the fact that firms do not usually grant holiday pay in the year in which the worker is taken on.

TABLE 4 WHICH FACTORS EXPLAIN THE INTENSIVE USE OF THE EMPLOYMENT CHANNEL IN BELGIUM?[1]

(percentage of the total number of firms, unless otherwise stated)

	All countries[2]	Euro area countries[3]	Belgium
Factors leading to a strong contraction of employment			
Collective wage agreements concluded at a level higher than the firm (+)	65.8	87.6	98.3
Coverage rate of collective wage agreements (+)	60.0	77.3	89.1
Linking of wages to inflation (+)	36.3	30.7	98.2
Share of labour in total costs (+)	35.0	35.6	37.5
Variable pay component (–)	12.6	12.1	7.7
Proportion of low-skilled manual workers in the workforce (+)	41.2	39.7	49.6
Protection of permanent employees against individual dismissal[4] (–)	2.5	2.5	1.7
Factors safeguarding employment			
Proportion of small firms (< 50 employees) (+)	49.1	49.5	67.0
Wage cushion (+)	n.	n.	72.7

Source: Dhyne and Druant (2010).
(1) Results weighted on the basis of employment and scaled by omitting the missing replies.
(2) AT, BE, CZ, EE, EL, ES, FR, HU, IE, IT, LT, NL, PL, PT, SI.
(3) AT, BE, EL, ES, FR, IE, IT, NL, PT, SI.
(4) Average of values between 0 and 4, corresponding to a rising degree of protection.

TABLE 5 GROWTH OF THE WAGE BILL OF FIRMS IN BELGIUM: EXPLANATORY FACTORS

(Belgian firms with over 50 employees, 1997-2001)

	Growth of the wage bill (in percentage)	Contribution to the growth of the wage bill (points of percentage)			
		increase in wages of existing workers	wage differential between new recruits and workers leaving the firm	change in the total number of days worked by existing workers	difference between days worked by new recruits and by workers leaving
Average	5.4	3.7	–1.4	0.7	2.4
Firms whose wage bill increases	7.9	3.8	–1.4	1.5	4.0
Firms whose wage bill decreases	–3.8	3.1	–1.5	–2.1	–3.2

Source: Fuss (2009).

5.1.2 Permanent versus temporary staff

The greater use of the employment channel in Belgium in response to adverse economic shocks concerns both permanent and temporary staff. In regard to the former, Belgium is in second place in the ranking of the 14 countries considered. In regard to the reduction of temporary staff, Belgium is in fourth place. This means that, unlike in many other countries such as Spain, France and the Netherlands, in the event of an economic shock there is no trade-off between a marked fall in the number of temporary employment contracts and a limited contraction of permanent employment.

More detailed analysis (Dhyne and Druant, 2010) shows that a large percentage of temporary workers in the total workforce increases the risk of a reduction in temporary employment while safeguarding permanent jobs. Temporary staff therefore act as a buffer in periods of adversity. Nonetheless, the proportion of temporary workers in Belgium (8.7 p.c.) is below the average (13.3 p.c.). Moreover, the legislation on temporary employment is stricter in Belgium (2.6 on a scale ranging from 0 to 4, compared to 2.2). The key role of temporary employment as a shock absorber can be explained partly by the low costs entailed in recruiting and dismissing temporary workers, namely 0.8 p.c. of the average costs associated with permanent staff (Dhyne and Mahy, 2009). In addition, temporary work is very widespread, particularly in large firms. While the proportion of temporary workers in total employment is low, almost 20 p.c. of firms in Belgium employ temporary workers.

It should be noted that, in Belgium, strict regulations on temporary employment and a high level of protection against collective dismissal (4.1 against 3.2) are accompanied by relatively flexible legislation on individual dismissal (1.7 against 2.5). In consequence, as stated earlier, over half of redundancies concern permanent staff, compared to an average of one-third for all countries examined.

5.1.3 Adjustment of real wages in line with productivity in Belgium

Another measure of wage rigidity is based on the elasticity of real wages in relation to productivity. In the absence of friction on the various markets, both the labour market and the product markets, that elasticity should be equal to one, which means that changes in productivity are reflected pro rata in changes in real wages. Two studies (Fuss and Wintr, 2009, for Belgium and Kilponen and Turunen, 2009, for Finland) compare how wages react to circumstances specific to the firm as opposed to circumstances affecting the entire sector. This reveals that the elasticity of real wages in relation to the firm's productivity is extremely low in Belgium (0.02). It should be noted that an equally low level is found for the other European countries (France, Italy, Portugal, Finland, Sweden and Hungary[1]) for which comparable studies exist.

Conversely, the elasticity of real wages in relation to sectoral productivity is much greater (0.41) in Belgium, just as it is in Sweden. The analysis for Belgium suggests that this is due (partly) to the role played by collective bargaining at sectoral level. For one thing, the measure of the reaction of real wages to negotiated wage increases during the year is positive (0.26). In the long term, negotiated wage increases are almost entirely reflected in average real wages of firms.[2] Also, the index of negotiated increases is correlated with productivity changes at sectoral level, with long-term elasticity at 0.47.

(1) See the respective articles by Biscourp et al. (2005), Guiso et al. (2005), Cardoso and Portela (2005), Kilponen and Turunen (2009), Carlsson et al. (2009), Katay (2008). Hungary alone has a higher elasticity (between 005 and 0.11), as a result of a more flexible labour market, far more decentralised wage bargaining and a very low coverage rate for collective bargaining.

(2) The study by López-Novella and Sissoko (2009), based on total individual wages in the private sector in Belgium, also indicates that the elasticity of wages to negotiated increases is very close to one.

There are various possible explanations for this result. First, it can be interpreted as a sign of wage rigidity. In that connection, it can be said that the Belgian study indicates positive elasticity of employment in relation to the firm's productivity, in accordance with the theories predicting greater employment volatility in the case of real wage rigidity. Second, labour market tensions may be a significant factor. As highlighted by the survey results, one of the reasons which firms give for not reducing wages is the fear that their workers may leave and move to other firms. That is typically the case when the pay cut concerns an isolated firm, but is not a factor, or significantly less so, if all firms in the sector jointly decide to adjust wages. Collective bargaining offers a framework for consultation and coordination in regard to decisions on wages.

5.2 Reaction during the economic and financial crisis

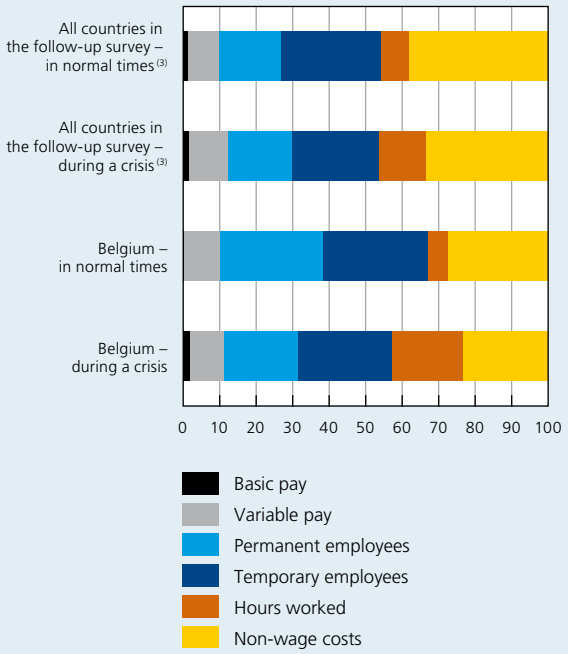
The follow-up survey conducted in the midst of the economic crisis examined whether the reaction of firms to the fall in their turnover was fundamentally different from that seen in normal times. In fact, the original survey had only considered the theoretical reaction to a hypothetical shock. As to the cost-cutting strategies, it should be noted that the firms participating in the follow-up survey no longer confined themselves to ticking a single option. They used several strategies simultaneously, and in each case they took stronger action than they had anticipated when responding to the original survey. The firms therefore reacted differently from the way in which they had anticipated in the case of a purely hypothetical situation. To permit a comparison of the results in normal times and those in a crisis, the latter were converted to the same scale so that the total of the strategies is equal to 100 p.c. The results need to be interpreted with due caution : it is advisable to focus on the trends apparent before and after the crisis, rather than the exact percentages.

As already stated in section 3.1, these results confirm that the firms which took part in both surveys make hardly any adjustments to basic pay, either in normal circumstances or in a crisis. The variable pay components made only a very small contribution to the adjustment process.

The decision to cut the number of hours worked is very noticeable : during the crisis, the share of this reaction in the total strategies adopted by all countries increased from 8 to 13 p.c. In Belgium, it increased fourfold, from 5 to 20 p.c. Ways of reducing the number of hours worked included limiting or abolishing overtime and making greater use of the time-credit system. However, in Belgium this reduction was achieved mainly by the system

CHART 8 COST-CUTTING STRATEGIES IN NORMAL TIMES AND IN A CRISIS (1)

(percentage of the total number of firms) (2)



Sources : WDN, BNB.

(1) Results weighted on the basis of employment and scaled by omitting the missing replies.
(2) The same sample of firms was used for both surveys.
(3) AT, BE, CZ, EE, ES, FR, IT, LU, NL, PL.

of temporary lay-offs. Under that system, the major part of the labour costs associated with surplus workers is no longer borne by the firm, whereas the workers concerned retain a contractual link with their employer, who can redeploy his staff as soon as business picks up. The already existing system of temporary lay-offs was extended in reaction to the crisis. Similar systems were introduced or extended in other countries, entailing a decrease in hours worked.

During the crisis, employment also contracted strongly in the case of permanent employees, and even more so for temporary staff. The latter act as a buffer, absorbing cyclical fluctuations. Nevertheless, a smaller number of firms than in the original survey replied that they had used the employment channel : 41 compared to 44 p.c. for all countries, and 46 compared to 57 p.c. for Belgium. It is also evident that the gap between Belgium and the average of the countries examined declined sharply from 13 to 5 percentage points. These results suggest that the reaction to the crisis had not ended at the time of the survey. Once the reduction in hours worked has reached its limit, the staff will probably be cut further, since – in

principle – temporary lay-offs can only absorb brief periods of falling demand.

In response to the crisis, firms also made substantial savings on their non-wage costs. That applies mainly to small firms which have less scope for reducing their workforce. The Belgian survey examined the expense items on which firms make the biggest cuts: vehicle fleet, maintenance, travel and representation expenses, advertising and sponsorship.

Conclusion

Between 2006 and 2009 over 70 economists from 25 NCBs and the ECB together with external consultants analysed the dynamics of wages in Europe via the *Wage Dynamics Network*. The results contain a number of relevant findings, including for Belgium. In this respect, it is noticeable that the findings of the macro- and micro-economic studies and the surveys are very coherent, and that increases their credibility.

The wage structure and the wage-setting institutions are relatively stable but differ from one country to another. However, the countries can be divided into groups sharing a set of institutional characteristics. The Belgian institutions are comparable overall to those of most euro area countries, except that the indexation of wages plays a much greater role. There are significant, persistent wage differentials between sectors which can only be partly explained by composition effects (the fact that wages depend on the characteristics of the workers, their type of occupation and their employer), and which suggest that it is mainly in the less competitive sectors that firms share with their workers part of the rent which they obtain from their dominant position by paying higher wages.

Wage rigidity was examined from various angles. First, it seems that wages are revised less frequently than prices, and often at fixed intervals rather than in response to changes in the economic environment. Second, firms are highly reluctant to reduce wages, and that may lead to a pay freeze. This was particularly apparent during the recent economic crisis. Third, when firms suffer negative shocks, wages play only a marginal role in cost adjustment. That finding was borne out during the recent crisis. Finally, downward adjustments rarely affect basic pay, even in the case of new recruits, but instead apply mainly to the variable component.

In regard to wage rigidity, it is important to distinguish between nominal and real rigidity. The former permits some scope for adjusting real wages via price inflation. That relative scope disappears if the rigidity is real. The emergence of real wage rigidity is encouraged by such factors as the degree of employment protection, the level of replacement incomes, the centralisation of wage bargaining, the indexation of wages in line with price inflation and the lack of competition on the market in goods. The greater the downward real rigidity of wages, the more firms respond by adjusting their workforce in the face of negative shocks. To do that they not only cut the number of regular staff but also use the scope for adjustment offered by temporary staff and reductions in working time. This last option was used particularly during the recent crisis, with government support. The euro area has downward real wage rigidity rather than nominal wage rigidity. That is particularly true in Belgium, the main reason being the system of automatic wage indexation.

On the basis of the results of the WDN research, it is possible to formulate a number of monetary policy implications. First, real wage rigidity makes it more complicated to conduct monetary policy in that it leads to larger fluctuations in output and employment, and makes inflation more persistent. Next, the optimum inflation rate is lower the greater the downward real rigidity of wages. That implies a rather low inflation target for the euro area in general, in line with the ECB's inflation target of just under 2 p.c., but that is still too high for Belgium. Finally, the research also shows that in a monetary union the countries with greater real wage rigidity suffer a loss of competitiveness in the event of adverse productivity shocks. In general, wage-setting institutions play a key role in the way in which firms and economies react to shocks. The institutional differences between euro area countries are therefore a challenge for monetary policy, a problem which will grow with each enlargement of the euro area. All this highlights the need for labour market reforms with a view to harmonisation and greater flexibility. However, those reforms must be conducted in the overall context, striking a careful balance between the optimum allocation of resources and social protection.

Annex

COMPOSITION OF THE WDN SURVEY SAMPLE USED FOR THE INTERNATIONAL ANALYSIS

	Number of firms in the original survey (2007-2008)	Percentages	Number of firms in the survey conducted during the crisis[1] (2009)	Percentages
Euro area				
Austria	548	3.57	336	6.15
Belgium	1,420	9.22	992	18.16
Spain	1,769	11.49	962	17.61
France	2,011	13.06	818	14.97
Greece	401	2.60	–	–
Ireland	848	5.51	–	–
Italy	952	6.18	676	12.37
Luxembourg	456	2.96	299	5.47
Netherlands	1,068	6.94	670	12.26
Portugal	1,320	8.57	–	–
Slovenia	650	4.22	–	–
Non euro area				
Czech Republic	399	2.59	241	4.41
Estonia	366	2.38	163	2.98
Hungary	1,959	12.72	–	–
Lithuania	333	2.16	–	–
Poland	896	5.82	307	5.62
Total	**15,397**	**100.00**	**5,464**	**100.00**

Sources: WDN, NBB.
(1) Firms participating in the follow-up survey during the crisis represent part of the sample participating in the original survey.

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Analysis of the population of non-financial corporations with negative economic profitability

X. Deville
F. Verduyn

Introduction

Every year, in its Economic Review of December, the National Bank presents the developments evident from the annual accounts of non-financial corporations. The article on the financial structure and results of firms in 2008 (1) contains an analysis on the trend in corporate profitability. Profitability relates to firms' ability to generate profits. It can be estimated on the basis of the net return on equity, but to place the analysis in a broader perspective the study in question also presented a detailed statistical breakdown of the net return ratio on total assets before tax and debt servicing (hereinafter referred to as "economic profitability" or just "profitability"). In order to cover all strata of the research population, the article extended its focus to include the full statistical breakdown: apart from the median data, the first and second quartiles were also studied, as were the tenth and ninetieth percentiles. It is preferable to use the concept of economic profitability for analysing the extremes of the distribution because it is available for all firms, in contrast to the return on equity which can only be calculated on the basis of firms with positive equity. The figures for the tenth percentiles and the first quartiles of the distribution of economic profitability show that many firms suffer losses year after year, a finding that requires further investigation.

This article describes and analyses the firms concerned. It starts by defining the concept of net return on total assets before tax and debt servicing and explaining the relationships that can be derived from that ratio. For completeness, the figures are taken from the said article. Next, the article gives an analysis based on the figures from the annual accounts of firms recording negative economic profitability. In this way it investigates whether the firms within the group recording negative economic profitability in the 1999-2008 period are always the same ones. If that is not the case, the average number of loss-making years is calculated. The analysis considers whether a link can be established between negative economic profitability and the sector in which the firm operates, the size and age of the firm and the region where it has its registered office. The intention is to find out whether non-financial corporations with negative economic profitability display specific characteristics which distinguish them from non-financial corporations in general. After that, the various annual accounts items composing the ratio are examined individually to gain an insight into the composition of the loss. Since the accounting laws do not permit losses to be simply accumulated year after year, the article finally examines which firms are obliged by sections 332, 431 and 633 of the Corporate Code to comply with the so-called "alarm bell procedure".

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1. Net return on total assets before tax and debt servicing

1.1 Definition of the ratio

A profitability ratio gives an indication of the result obtained from the operation of a firm by comparing revenue and expenses. The results which a firm achieves are thus assessed in relative terms, in relation to the total assets or equity capital.

The net return on total assets before tax and debt servicing (see Annex 1) links the operating results to the total assets. The ratio measures the operating result (after non-cash expenses but before tax) per € 100 invested in assets. In that respect this ratio differs from the return on equity which is greatly influenced by the financial structure.

1.2 Trend in the net return on total assets before tax and debt servicing

Table 1 shows the pattern of economic profitability for Belgian non-financial corporations between 1999 and 2008. It is apparent that for both large firms and SMEs[1] the tenth percentile is always decidedly negative, with a low point in each case during the years of weak economic activity (2001-2002 and 2008). In the case of SMEs, even the first quartile remains negative in most years. For 2008 this means in practice that 10 p.c. of large firms recorded a negative net operating result of at least € 6.8 per € 100 invested in assets, and 25 p.c. of SMEs generated no income at all per € 100 invested in assets.

2. Analysis

2.1 Average number of years

The above figures immediately raise the question concerning the structure of the population of firms with negative economic profitability. Is it always the same firms that record a negative profitability year after year, or does the population change annually, and how long do the losses persist for most firms?

Table 2 shows the sectoral breakdown[2] of the number of firms which repeatedly recorded negative economic profitability every year between 1999 and 2008. This shows that a small group of 907 firms never recorded a profit in all those years. This group of firms belongs mainly to non-manufacturing industry.

(1) Firms which file their annual accounts in the full format are regarded as large firms and those using the abridged format are regarded as SMEs.

(2) The sectoral classifications used and the corresponding NACE-BEL 2008 divisions may be found in Annex 2.

TABLE 1 DISTRIBUTION OF THE NET RETURN ON TOTAL ASSETS BEFORE TAX AND DEBT SERVICING
(percentages)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008 e
Large firms										
P90	20.0	19.7	19.7	19.1	21.0	22.6	23.2	23.9	24.3	23.2
Q3	9.9	10.0	9.8	9.3	10.3	11.5	11.9	12.6	13.0	12.2
Q2	4.0	4.3	4.1	3.7	3.9	4.5	4.7	5.1	5.5	4.9
Q1	0.7	0.8	0.5	0.2	0.4	0.8	1.0	1.3	1.5	1.2
P10	–6.1	–6.4	–7.9	–9.2	–8.1	–6.6	–5.6	–4.6	–4.4	–6.8
SMEs										
P90	24.0	24.6	24.1	23.9	24.8	25.5	25.8	26.4	27.8	27.0
Q3	12.2	12.6	12.2	12.0	12.4	12.9	12.9	13.3	14.1	13.3
Q2	5.2	5.3	5.1	4.9	5.0	5.1	5.1	5.3	5.7	5.3
Q1	0.0	0.1	–0.1	–0.5	–0.5	–0.4	–0.4	–0.2	0.0	–0.3
P10	–10.3	–10.1	–11.2	–12.5	–13.0	–12.9	–13.0	–12.5	–11.6	–13.8

Source: NBB.

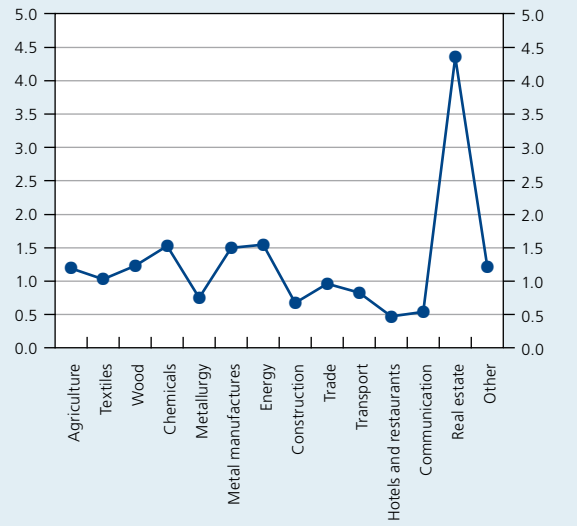
TABLE 2 NUMBER OF FIRMS WITH NEGATIVE ECONOMIC PROFITABILITY EACH YEAR IN THE PERIOD 1999-2008

	Number of firms
Manufacturing industry	**48**
of which:	
Agricultural and food industries	11
Textiles, clothing and footwear	6
Wood, paper products and printing	13
Chemicals and pharmaceuticals	3
Metallurgy and metalworking	6
Metal manufactures	9
Non-manufacturing branches	**859**
of which:	
Wholesale and retail trade	205
Transportation and storage	19
Accommodation and food service activities	29
Information and communication	19
Real estate activities	346
Other service activities	194
Energy, water supply and waste	3
Construction	44

Source: NBB.

CHART 1 FIRMS WITH NEGATIVE ECONOMIC PROFITABILITY EACH YEAR IN THE PERIOD 1999-2008

(in percentages of all firms with negative profitability)



Source: NBB.

To obtain an accurate picture, the number of firms with negative economic profitability each year is expressed in relation to the total number of firms with negative profitability per sector for the period from 1999 to 2008. Chart 1 shows that in most sectors, on average, only 1.3 p.c. of firms with negative profitability fail to reverse that trend year after year. However, it is noticeable that this percentage is considerably higher (4.35 p.c.) in the "Real estate activities" sector.

Almost half of the companies in this sector come under subsector 68.1 "Letting of own property". These are property companies set up to cover one or more properties. In some situations, forming a property company makes it possible to expand the ownership of real estate in a fiscally advantageous manner. If a property is owned by a property company, expenses are tax deductible and depreciation can be recorded on the buildings. A property company's profit is often insignificant because the expenses incurred – in which depreciation may be the main item – are deductible. These expenses depress the taxable profit to such an extent that a relatively higher percentage of firms in this sector constantly record negative economic profitability.

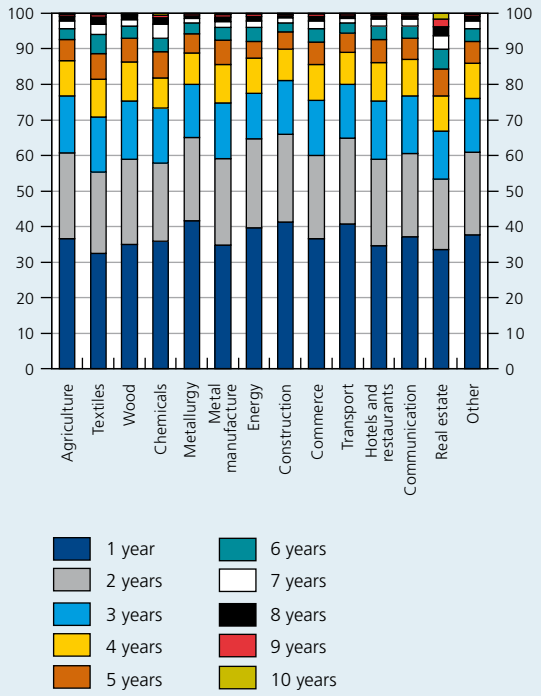
The above figures clearly show that only a minority of firms recorded negative profitability throughout the 1999-2008 period. Chart 2 illustrates how long the period without the ability to make a profit persisted for most firms. For all firms, the number of years with a negative ratio were added together from 1999 to 2008. For most sectors the breakdown is broadly similar. For 37.2 p.c. of firms, the negative result is an unusual event which is adjusted straightaway in the following year. Just under a quarter of firms (23.3 p.c.) need at least two years to achieve that. For the majority of firms (85.6 p.c.) the period of negative economic profitability does not last longer than 4 years.

2.2 Sectors of activity

Chart 3 illustrates the breakdown of the number of non-financial corporations between manufacturing and non-manufacturing industry. The "Total" columns represent this breakdown for non-financial corporations as a whole, while the columns headed "Neg. profit." represent the breakdown of firms with negative profitability.

CHART 2 AVERAGE NUMBER OF YEARS OF NEGATIVE ECONOMIC PROFITABILITY

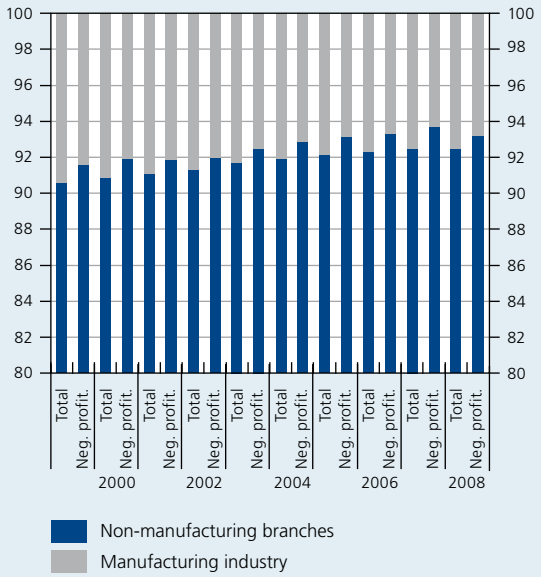
(in percentages of all firms with negative profitability)



Source : NBB.

CHART 3 SECTORAL BREAKDOWN OF THE NUMBER OF FIRMS

(in percentages)



Source : NBB.

In the two populations of firms, non-manufacturing industry (in blue) is very much in the majority. It is also apparent that non-manufacturing industry is slightly over-represented among firms with negative profitability, and that this over-representation increases somewhat between 2004 and 2007. That therefore means that negative profitability affects proportionately more non-manufacturing than manufacturing firms, particularly in 2006 and 2007.

This difference in the breakdown between the two populations of firms is minimal if the analysis is confined to this not very detailed level of classification. However, analysis of the number of firms according to the detailed sectoral classifications in Annex 2 reveals more significant differences and permits identification of the sectors which contain proportionately more firms with negative profitability.

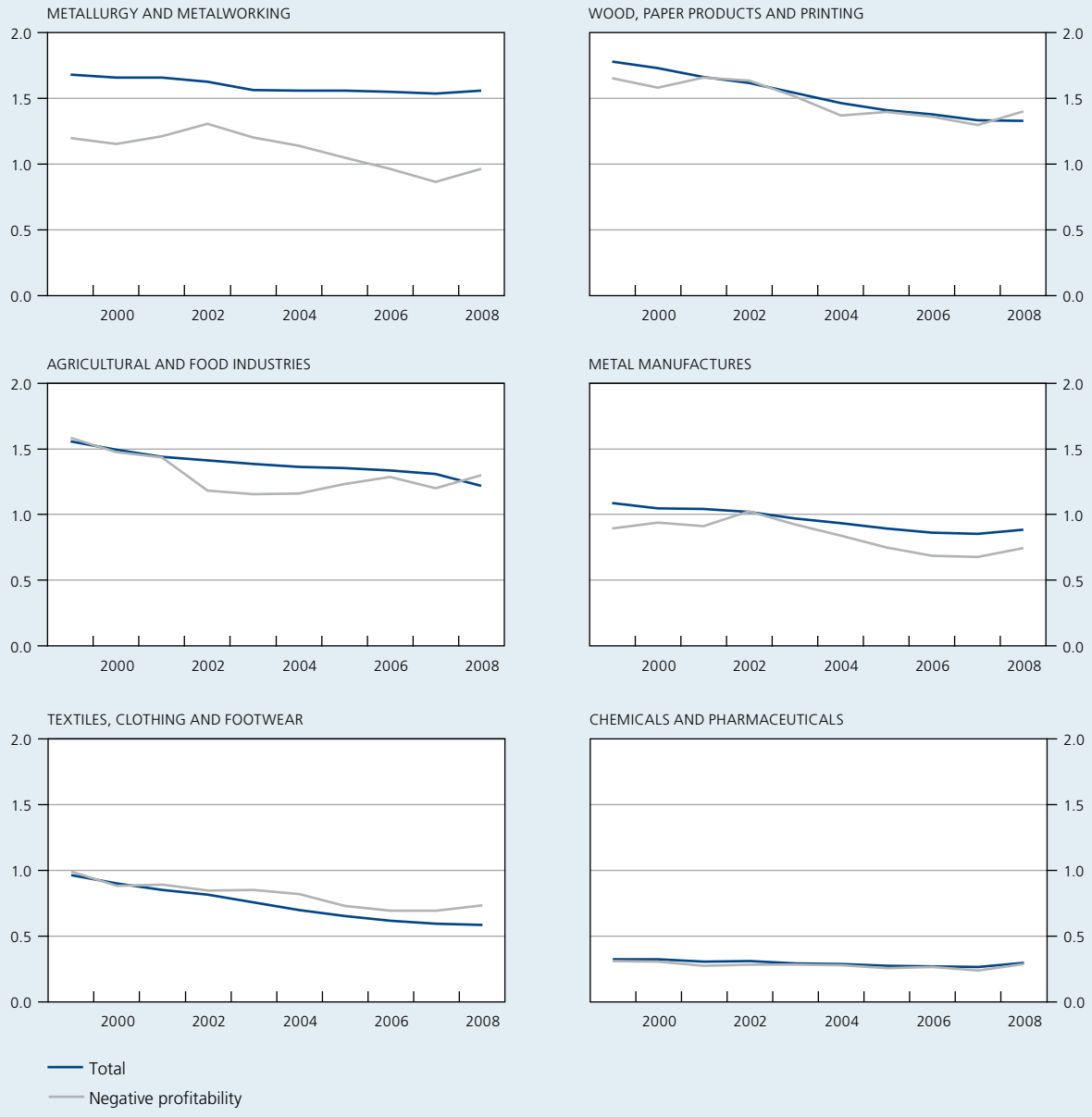
Charts 4 and 5 indicate in terms of the number of firms the share which each sector represents in non-financial corporations as a whole (in blue) and in non-financial corporations with negative profitability (in grey).[1] There are three possible cases : over-representation, under-representation or identical representation of a sector in the population of firms with negative profitability in relation to its size in the total population of firms. In the first case, that indicates that the sector is more affected than others by the problem of negative profitability. Conversely, in the second case the sector has relatively few firms with negative profitability. Finally, in the last case the size of the sector among firms with negative profitability is similar to that among firms as a whole, so that no particular conclusion can be drawn.

As shown by Chart 3, manufacturing industry has proportionately fewer firms with negative profitability than non-manufacturing industry. It is therefore not surprising that most of the manufacturing industry sectors analysed are under-represented in the population of firms with negative profitability (Chart 4). That situation is particularly true for the metallurgy and metalworking sector which, in 2008, represented 1.6 p.c. of the total number of non-financial corporations, but only 1 p.c. of companies with negative profitability. That situation could be attributable to the many restructuring operations in this sector, which gradually eliminated the less profitable firms.

(1) Since manufacturing industry is very much in the minority in terms of the number of firms, a different scale is used for manufacturing and non-manufacturing industry sectors.

CHART 4 MANUFACTURING INDUSTRY: SECTORAL BREAKDOWN OF THE NUMBER OF FIRMS

(in percentages of all firms and of all firms with negative profitability)



Source: BNB.

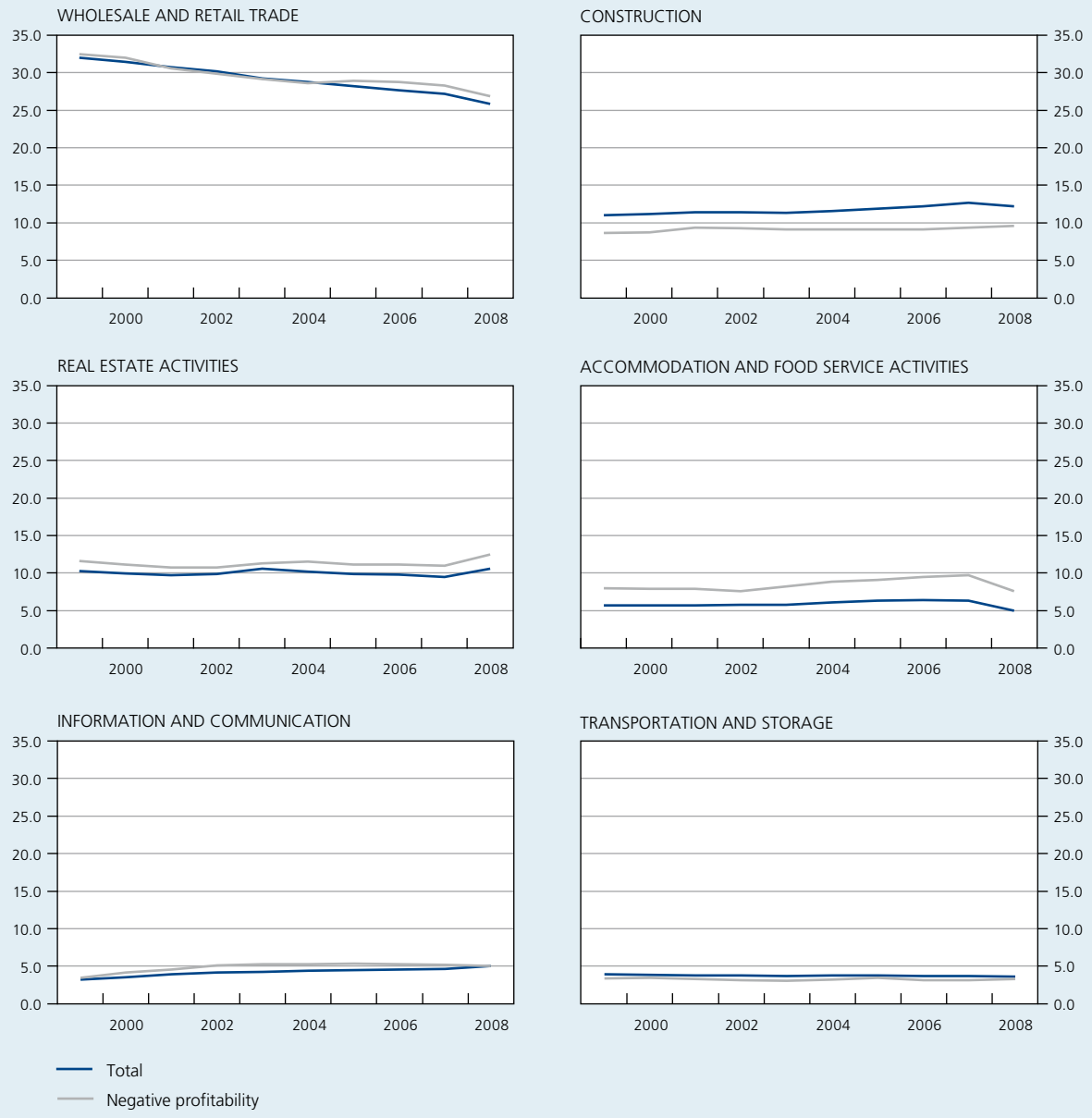
The only manufacturing industry sector in which the share in the population of firms with negative profitability exceeds that in the total population is textiles, clothing and footwear. Although that difference has increased over the years, it is still fairly small.

It should also be noted that in 2008 two manufacturing industry sectors became over-represented in the population of firms with negative profitability, owing to a fall in their share in firms as a whole and an increase in their size in the population of firms with negative profitability. Those sectors – "Agricultural and food industries", on the one hand, and the wood, paper products and printing sector on the other – therefore contained a relatively large number of firms with negative profitability in 2008.

In contrast, in non-manufacturing industry (Chart 5) most of the sectors are over-represented in the population of firms with negative profitability. This over-representation is the largest in "Real estate activities"

CHART 5 NON-MANUFACTURING BRANCHES: SECTORAL BREAKDOWN OF THE NUMBER OF FIRMS

(in percentages of all firms and of all firms with negative profitability)



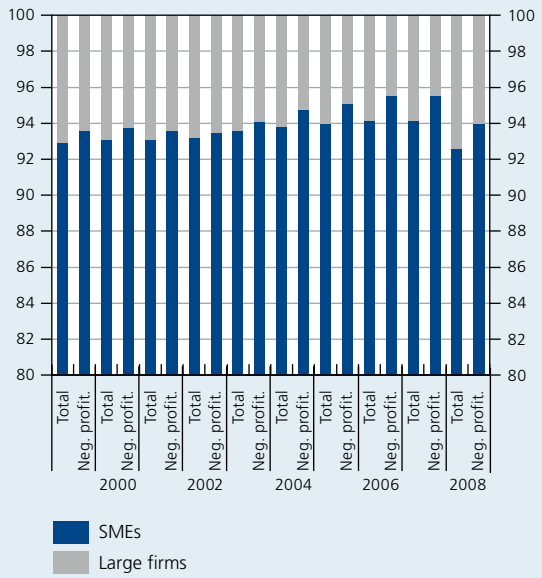
Source : NBB.

and "Accommodation and food service activities". It is also evident that, since 2005, the trade sector has had proportionately more firms with negative profitability than previously. Construction is the only non-manufacturing industry sector to be under-represented in the population of firms with negative profitability. In 2008 that sector represented 12.2 p.c. of the total population of non-financial corporations, whereas its share of all firms with negative profitability was 9.6 p.c. That figure has been particularly stable over the years, fluctuating between 9 and 10 p.c. This sector therefore seems to be relatively less affected by the problem of negative profitability.

2.3 Size

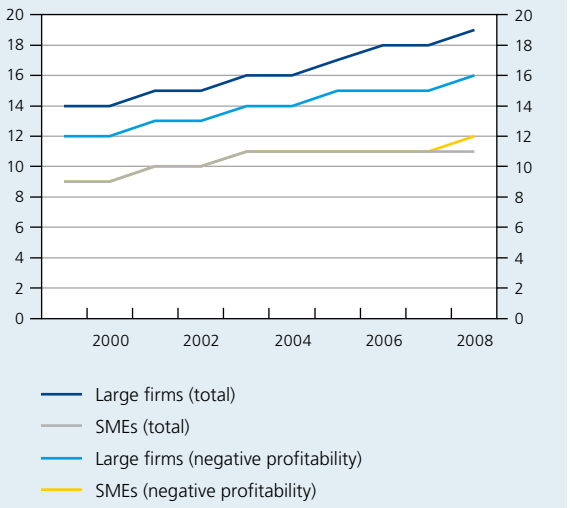
Chart 6 illustrates the breakdown of the number of firms according to their size (large firm or SME). As in Chart 3, this breakdown is effected for all non-financial corporations on the one hand and for all non-financial

CHART 6 BREAKDOWN OF THE NUMBER OF FIRMS BY SIZE
(in percentages)



Source : NBB.

CHART 7 MEDIAN AGE OF FIRMS BY SIZE
(years)



Source : NBB.

corporations with negative profitability on the other hand.

In both populations, SMEs are by far the most numerous. They are over-represented in the population of firms with negative profitability, which means that the negative profitability problem affects proportionately more SMEs than large firms.

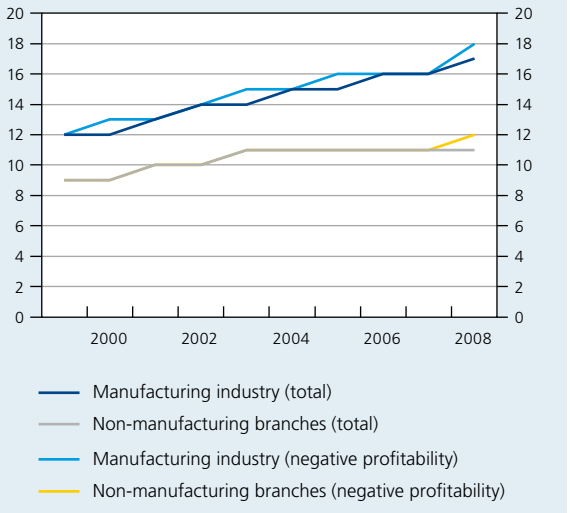
2.4 Age

Chart 7 shows the median age[1] of firms according to their size for the entire population of non-financial corporations and for the population of non-financial corporations with negative profitability.[2]

This shows that the median age of firms increases for both SMEs and large firms, both in the total population and in the population of firms with negative profitability. The median age of SMEs with negative profitability is no different from the age of SMEs as a whole, except for 2008 when the median age of SMEs with negative profitability is one year more. That suggests that the negative profitability problem affected older SMEs in that year.

Conversely, for large firms there is a difference of several years between the median ages of the two groups, and that difference increases over time. Thus, in 2008, 50 p.c.

CHART 8 MEDIAN AGE OF FIRMS BY SECTOR
(years)



Source : NBB.

(1) The median age was preferred to the average age in order to limit the influence of extreme values, in this case very old firms.

(2) The age is calculated in relation to the year of establishment of the firm, namely the year of publication of its articles of association in the Moniteur belge.

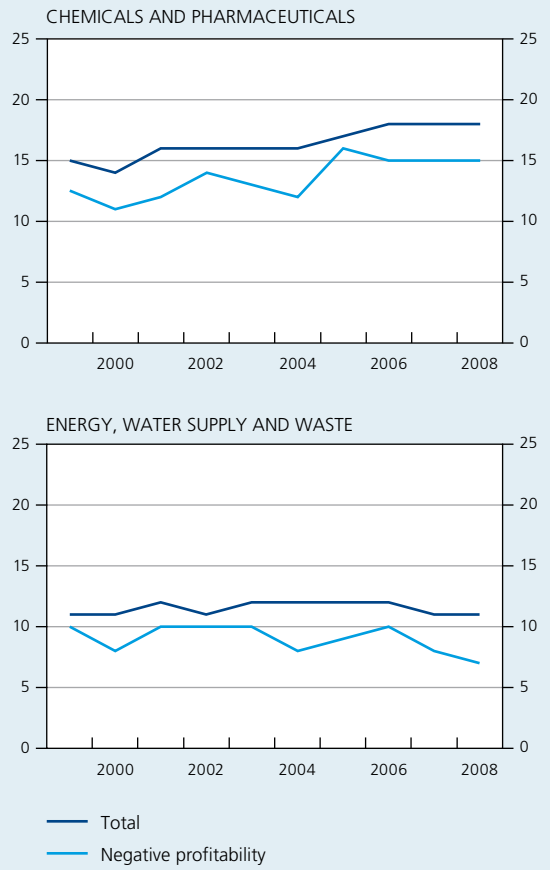
of large firms with negative profitability were under 16 years old, whereas in the population as a whole 50 p.c. of large firms were under 19 years old. This therefore means that large firms in a negative profitability situation are younger overall than large firms with positive or zero profitability.

A distinction between firms in non-manufacturing industry and those in manufacturing industry shows (Chart 8) that the age of firms with negative profitability corresponds roughly to the age of firms as a whole in each of the two branches.

Analysis according to a more detailed sectoral classification confirms these findings, except for two sectors (Chart 9): "Chemicals and pharmaceuticals" (manufacturing industry) and "Energy, water supply and waste" (non-manufacturing industry).

CHART 9 MEDIAN AGE OF FIRMS BY SECTOR: "CHEMICALS AND PHARMACEUTICALS" AND "ENERGY, WATER SUPPLY AND WASTE"

(years)



Source : NBB.

The median age of firms with negative profitability in these two sectors was in 2008 three to four years younger than the median age of all companies in these sectors, therefore indicating that young businesses are more affected by the negative profitability problem.

It should be noted that these two sectors are also the smallest in terms of the number of firms, since they represent respectively 0.3 and 0.4 p.c. of the total population of non-financial corporations.

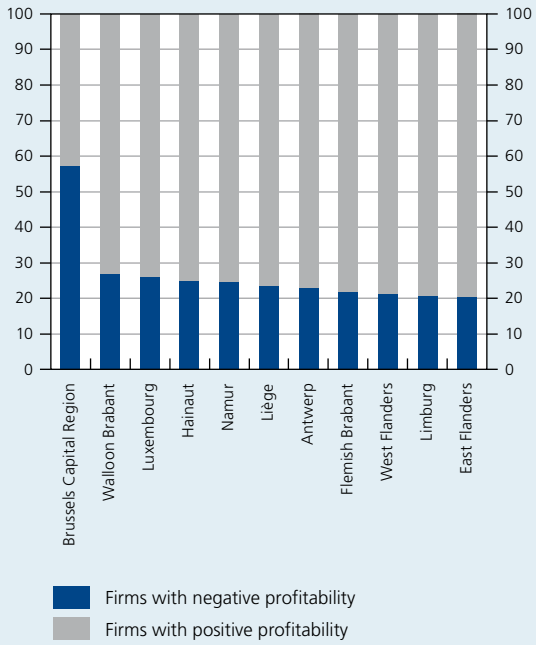
2.5 Regional breakdown

For 2008, the number of non-financial corporations with negative or positive economic profitability was examined per province. A firm is allocated to a particular province on the basis of the postcode of the address of its registered office. [1] Annex 3 gives the breakdown of postcodes among the different provinces.

(1) This analysis was based on the address of the registered office, which is public information available via the Central Enterprise Databank. Since the place of business need not be the same as the registered office of a firm, that could influence the findings.

CHART 10 ECONOMIC PROFITABILITY PER PROVINCE AND IN THE BRUSSELS CAPITAL REGION IN 2008

(in percentages)



Source : NBB.

The Brussels Capital Region has the highest ratio of firms with negative profitability (57.4 p.c.). That is also the only region where the number of loss-making firms represents more than half the total number of firms. In all provinces, roughly a quarter of firms (23.4 p.c.) fail to generate profits.

These results are totally consistent with the findings of a survey[1] by the Entrepreneurship Research Centre into the causes of bankruptcies. An inter-regional analysis of the rate of business bankruptcies and closures shows that firms in the Brussels Capital Region are more vulnerable than those in Flanders or Wallonia. The Brussels Capital Region has an average bankruptcy rate of 1.4 p.c. and an average closure rate of 10 p.c. In contrast, the average bankruptcy rate in Flanders is 0.7 p.c. and the average closure rate is 5 p.c. In Wallonia, the bankruptcy rate averages 0.9 p.c., and the closure rate 8 p.c.

2.6 Composition of the ratio

This section takes a closer look at the various items composing the economic profitability ratio (see Annex 1), focusing mainly on the items responsible for the ratio's negative sign. This analysis uses the statistical data for all firms with negative economic profitability for the 2008 financial year. The calculations are performed for both large firms and SMEs, and are presented per sectoral group.

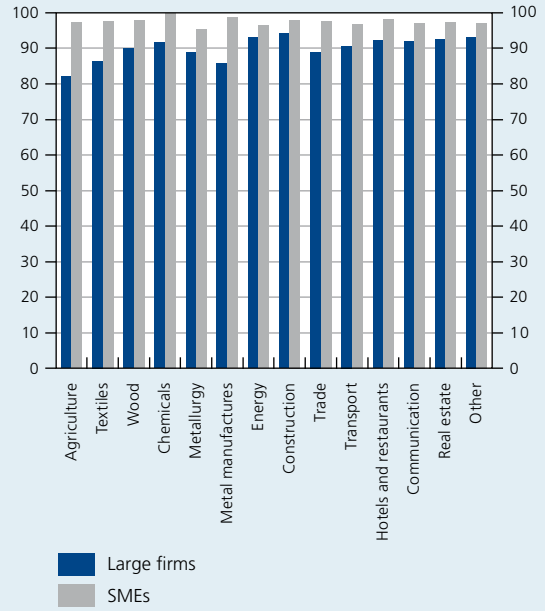
Analysis of the annual accounts data shows that in the case of all large firms and 99.7 p.c. of the SMEs the negative economic profitability ratio is due to a negative item 9904 ("Profit (Loss) for the financial year"). The SMEs for which this is not the case have only a negative item 67/77 ("Tax on the result"). This may indicate that those firms had reckoned on a higher profit than they actually achieved, so that they had made excessive advance payments to FPS Finance.

Chart 11 shows that, on average, for 90 p.c. of large firms and 97.4 p.c. of SMEs, the negative sign for item 9904 is attributable to a negative item 9901 ("Operating profit/loss"). On average, one in ten large firms starts by recording an operating profit, but financial or exceptional

(1) Lambrecht, J. and W. Ting To (2009), Reasons for the failure of self-employed persons and SMEs. A quantitative and qualitative analysis, Liberaal Verbond voor Zelfstandigen.

CHART 11 FIRMS WITH AN OPERATING LOSS IN 2008

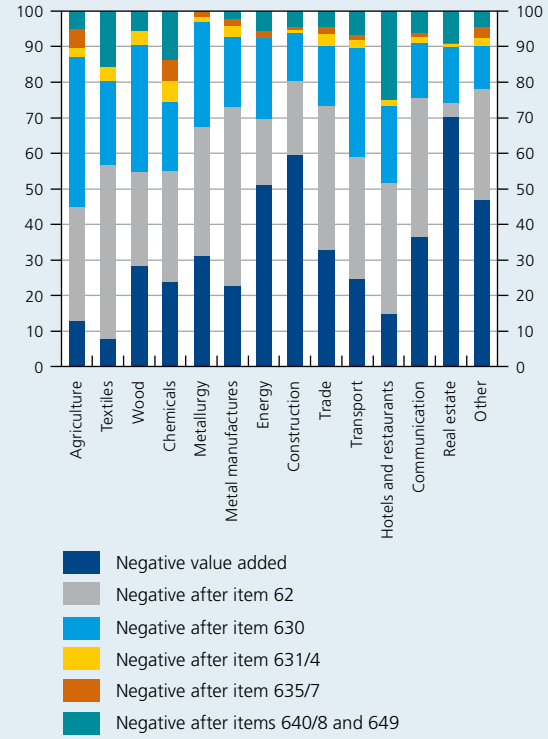
(in percentages of firms with a loss for the financial year)



Source : NBB.

CHART 12 LARGE FIRMS – EXPENSES LEADING TO A NEGATIVE GROSS OPERATING RESULT IN 2008

(in percentages of firms with negative profitability)



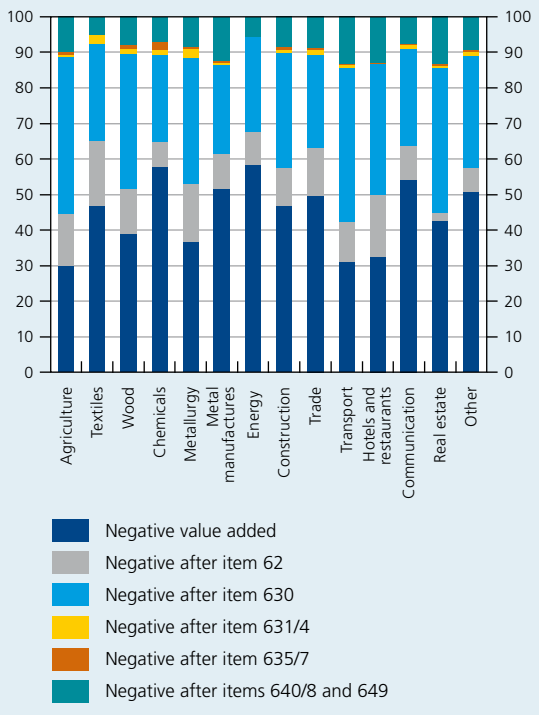
Source : NBB.

expenses then negate the profit. The amounts included in the exceptional expenses item concern value reductions on financial fixed assets (item 661). That may be due to the financial crisis.

Charts 12 and 13 start with value added[1] and attribute the various expenses (staff costs and other operating expenses) leading to a negative gross operating result for large firms and for SMEs. Value added represents the value which, by using its production factors, a firm adds to the value of the goods and services consumed. It forms the basis on which a firm can remunerate its production factors and creditors. Yet 33.1 p.c. of large firms and 44.9 p.c. of SMEs with negative economic profitability do not generate sufficient sales to pay for the merchandise and services which they use. In the case of large firms, there are considerable sectoral variations. The ratio of firms with negative value added is above average in construction (60 p.c.), the energy sector (51 p.c.) and in the "Real estate activities" sector (70 p.c.). That indicates that in those sectors the large firms apply a small profit margin which is insufficient to pay for the merchandise, raw materials, auxiliary materials and services bought in.

CHART 13 SMES – EXPENSES LEADING TO A NEGATIVE GROSS OPERATING RESULT IN 2008

(in percentages of firms with negative profitability)



Source : NBB.

Of the firms which do generate sufficient sales to pay for the goods and services consumed, the value added is insufficient to cover all the staff costs (item 62) in the case of 32.2 p.c. of large firms, on average, and 11.4 p.c. of SMEs. The ratio of firms with negative economic profitability after deduction of staff costs actually seems to be higher for large firms (65.3 p.c.) than for SMEs (56.3 p.c.). Staff costs are clearly a key determinant for the profit margin of large firms. Finally, for the majority of both large firms (88.1 p.c.) and SMEs (89.1 p.c.), the turnover achieved is ultimately insufficient to cover all writedowns.

2.7 Alarm bell procedure

If a firm makes a loss, the management board has to examine the extent of the loss. It does so by comparing the net assets with the authorised capital. A firm's capital acts as a safeguard and offers both its shareholders and its creditors a degree of security that a minimum level of assets will still be present. In view of this important function, the legislature has introduced a measure to ensure that the authorised capital is maintained. This capital protection measure is defined by what is known as the "alarm bell procedure". This procedure applies equally to limited liability companies (section 332 of the Corporate Code), limited partnerships (section 431 of the Corporate Code) and public limited companies (section 633 of the Corporate Code).

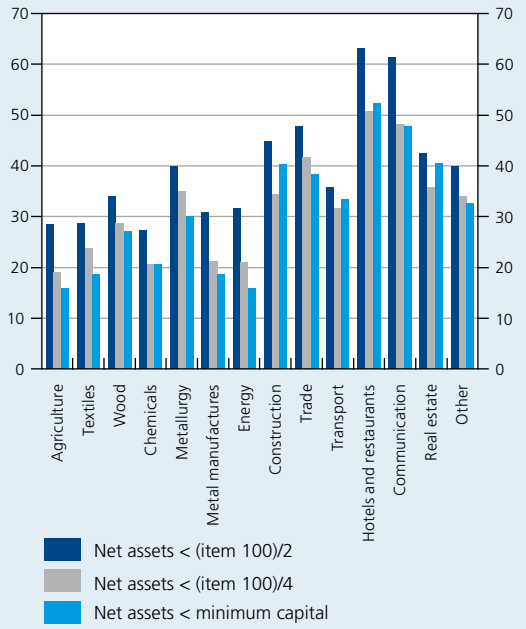
The alarm bell procedure distinguishes between two situations in which, owing to the loss, the net assets are reduced to either less than half or less than a quarter of the authorised capital. The net assets of a firm are equal to the total of the assets as shown on the balance sheet less the provisions and debts (item 10/15 "Equity capital"). A firm's authorised capital is equal to the subscribed capital shown in item 100.

If the net assets fall to less than half of the authorised capital, the management board has to prepare a special report containing a proposal for the continuation of the business. If the management board considers that the business can survive, it has to draw up a recovery plan. The management board has to convene the general meeting within a maximum of two months following establishment of the loss. That gives the general meeting the opportunity to decide on the prompt dissolution of the company or on any recovery measures which have been announced. The company can be dissolved by a three-quarters majority.

(1) See Annex 1 for the definition of value added.

CHART 14 LARGE FIRMS WITH ALARM BELL PROCEDURES IN 2008

(in percentages of firms with negative profitability)



Source : NBB.

If the shareholders decide not to dissolve the company, and if – despite the recovery plan – the net assets continue to decline to less than a quarter of the authorised capital, the management board must convene another general meeting. Dissolution can be approved by a quarter of the votes cast.

If the net assets have fallen to less than € 61,500 in the case of a public limited company, and less than € 6,200 for a limited partnership or a private limited company, any interested party can apply to the court for dissolution. In practice, this means that shareholders, consumers and suppliers can demand the company's dissolution by applying to the court.

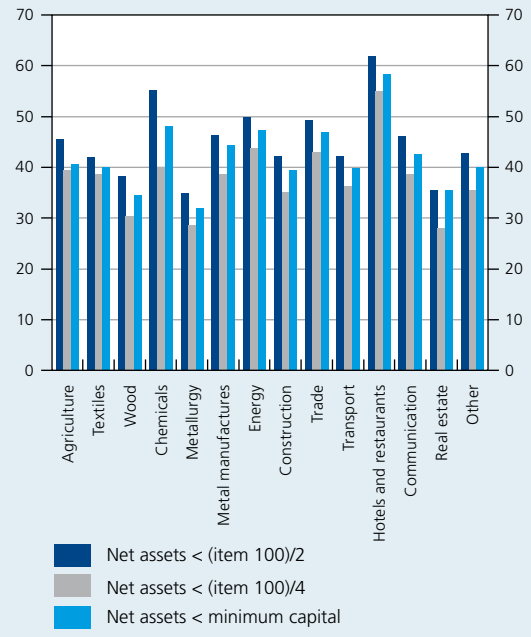
Failure to comply with this procedure may have serious consequences for the management. If the managers or directors fail to inform the general meeting in accordance with the alarm bell procedure, they may be held jointly and severally liable. The alarm bell procedure provides for a legal assumption that if the general meeting is not convened in due time, the loss incurred by third parties is deemed to result from that failure. In bankruptcy cases it is quite common for managers or directors to be held personally accountable purely because they failed to comply with the alarm bell procedure.

Since compliance with the alarm bell procedure is important not only for the firm but also for the potential liability of the managers and directors, a number of calculations were performed in regard to the ratio between the net assets and the authorised capital for the population of firms with negative economic profitability in 2008. The charts 14 and 15 show the results per sector for both large firms and SMEs. In the case of 39.8 p.c. of large firms and 45.2 p.c. of SMEs with negative economic profitability, the net assets had fallen to less than half of the authorised capital, so that the general meeting must be convened within two months of establishment of the loss. For 31.9 p.c. of the large firms and 37.9 p.c. of the SMEs, the net assets had actually dropped to less than a quarter of the authorised capital, so that the company could be dissolved by a quarter of the votes cast at the meeting. Finally, 30.8 p.c. of the large firms and 42.1 p.c. of the SMEs with negative economic profitability could be confronted with an application to the court for dissolution of the company.

There are some sectors where the ratio of firms with net assets below a particular percentage of the authorised capital is noticeably higher than average. In the "Accommodation and food service activities" sector, 63.1 p.c. of large firms and 62 p.c. of SMEs need to

CHART 15 SMES WITH ALARM BELL PROCEDURES IN 2008

(in percentages of firms with negative profitability)



Source : BNB.

initiate the alarm bell procedure. That picture is borne out by the findings in the said study by the Entrepreneurship Research Centre into the reasons for bankruptcies. The highest bankruptcy rate was found in the hotel and restaurant sector, at almost 2 p.c. This sector also had the highest rate of business closures, at almost 10 p.c.

Conclusion

An analysis of the pattern of the net return on total assets before tax and debt servicing on the basis of the annual accounts of non-financial corporations shows that, each year, many firms suffer losses. In regard to economic profitability in the period 1999-2008, in the case of both large firms and SMEs the tenth percentile was constantly decidedly negative, and for SMEs it is actually the first quartile that was negative in most years. The present analysis permits identification of a number of characteristics specific to firms with negative profitability.

For most firms, negative economic profitability was not recorded in more than 4 years. The ratio of firms which did not succeed in recording positive rentability in a single year during the period studied is highest in the "Real estate activities" sector.

The number of firms with negative profitability is proportionately higher in non-manufacturing than in manufacturing industry, particularly in the real estate and hotel and restaurant sectors, but also in trade since 2005. One sector in manufacturing industry, namely textiles, clothing and footwear, seems to contain a relatively large number of firms with negative profitability. The sectors with relatively few firms recording negative profitability are principally metallurgy and metalworking in manufacturing industry and construction in non-manufacturing industry.

Analysis by firm size (SMEs or large firms) reveals that it is SMEs that are proportionately more affected by negative profitability.

Examination of firms' ages shows that this does not appear to be a factor for SMEs, but in the case of large firms, those with negative profitability have a median age which is 2 to 3 years younger than the figure for large firms as a whole. "Energy, water supply and waste" (non-manufacturing industry) and the chemical and pharmaceutical industries (manufacturing industry) are the sectors with the largest difference in the median age between firms as a whole and those with negative profitability, the latter group being 3 to 4 years younger than the former.

Examination of the regional location of all firms in 2008 shows that the highest ratio of firms with negative profitability was found in the Brussels Capital Region. Furthermore, that is the only geographical entity where the number of loss-making firms exceeded half of the total number of firms. However, it should be noted that firms with multiple operating locations often have their registered office in the Brussels Capital Region, so that the regional analysis should be treated with due caution.

Analysis of the various items in the annual accounts composing the economic profitability ratio reveals that, among the enterprises with negative economic profitability, one in three large firms and just under half of SMEs generate no value added at all. That mortgages the future of those businesses, because the lack of value added means that they cannot sufficiently pay for their production factors. It is particularly the "Construction", "Energy, water supply and waste" and "Real estate activities" sectors that have a larger proportion of firms with negative value added. This may indicate application of a low profit margin in these sectors.

Finally, the ratio between the net assets and the authorised capital was calculated for all firms with negative profitability in 2008. This shows that, under the alarm bell procedure, 30.8 p.c. of the large firms concerned and 42.1 p.c. of SMEs with negative economic profitability could be confronted with an application to the court for dissolution of the company.

Annex 1

DEFINITION OF THE RATIOS

	Item numbers allocated	
	in the full format	in the abbreviated format
1. Net return on total assets before tax and debt servicing		
Numerator (N)	9904 + 650 + 653 – 9126 + 9134	9904 + 65 – 9126 + 67/77
Denominator (D)	20/58	20/58
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
2. Value added		
Operating revenues	70/74 – 740	70
of which income		
Consumption of goods and services	–(60 + 61)	–60/61
of which merchandise and raw materials		
Value added	**70/74 – 60 – 61 – 740**	**9900**

Annex 2

SECTORAL GROUPINGS

	NACE-BEL 2008 divisions
Manufacturing industry	**10-33**
of which:	
Agricultural and food industries	10-12
Textiles, clothing and footwear	13-15
Wood, paper products and printing	16-18
Chemicals and pharmaceuticals	20-21
Metallurgy and metalworking	24-25
Metal manufactures	26-30
Non-manufacturing branches	**01-09, 35-82, 85.5 and 9** (1)
of which:	
Wholesale and retail trade	45-47
Transportation and storage	49-53
Accommodation and food service activities	55-56
Information and communication	58-63
Real estate activities	68
Other service activities	69-82
Energy, water supply and waste	35-39
Construction	41-43

(1) Except 64, 65, 75, 94, 98 and 99.

Annex 3

POSTCODES PER PROVINCE

Province	Postcode
Brussels Capital Region	1000-1299
Walloon Brabant province	1300-1499
Flemish Brabant province	1500-1999 and 3000-3499
Antwerp province	2000-2999
Limburg province	3500-3999
Liège province	4000-4999
Namur province	5000-5999
Hainaut province	6000-6599 and 7000-7999
Luxemburg province	6600-6999
West Flanders province	8000-8999
East Flanders province	9000-9999

Poverty in Belgium

Y. Saks
Ph. Delhez

Introduction

Poverty remains a fact of life in Belgium despite the numerous, effective social assistance and family policies carried out by Belgian authorities at the federal, regional and local levels. Some 15 p.c. of the population, or one person in seven, belongs to a group at significant risk of poverty.

As part of its new 10-year strategic plan, published in February and entitled EU2020, Europe argues for sustainable growth based on education and innovation that benefits all of society. To guide the process, the Commission has proposed measurable targets in five areas: employment, research and innovation, energy and climate change, education, and fighting poverty. With respect to the last area, the goal is to significantly reduce the number of individuals living below the poverty line. A consensus has yet to be reached on the exact figure.

Building on the ongoing European year for combating poverty and social exclusion, an "inclusive" growth is recommended that favours economic, social and territorial cohesion; raises public awareness; and promotes the fundamental rights of persons living in poverty and social exclusion by giving them the means to live with dignity and become active members of society.

All of this makes it a good time to take stock of poverty in Belgium in a European context. The data presented in this report are based principally on households' disposable income after social transfers (social security contributions, taxes and various allocations). The two principal tools for redistributing income in Belgium – the tax system and social security system – have already been the subject of published research[1]. After a short overview of income inequality in section one, we will present the indicators most commonly used to evaluate the extent and severity of inequality at both the national and regional levels, as well as in the other EU15 countries. We will also review which socioeconomic groups are the most affected. Section four looks at poverty using longitudinal data. This section is followed by our conclusions.

1. Income distribution

There are differences in household income in every economy. A strictly egalitarian distribution of economic resources is not a feasible goal. However, a society can try to ensure equal opportunity, notably by allowing all of its citizens to develop their talents and by creating the incentives needed to ensure that they become productive members.

The question of income distribution is important throughout society, and while opinions can diverge on how much differentiation is desirable depending upon the social model and the era, reducing poverty has always been among the goals of public action. To study the incidence of the structural factors underlying inequality and poverty, it is vital to have data on personal and household income from one end of the spectrum to the other. Relative income levels are key to evaluating the living conditions of individuals because individuals evaluate their own situation by comparing themselves with those around them, regardless of what we may consider fair. Like poverty, inequality is a relative concept.

(1) See notably: Van Cauter K. and L. Van Meensel (2006), "The redistributive character of taxes and social security contributions", NBB, *Economic review*, 2e trimestre.

The Household Budget Survey (HBS) and Statistics on Income and Living Conditions (SILC) are the principal sources used to paint a picture of inequality, poverty and social exclusion at both the Belgian and European levels.

Income distribution can be shown graphically using a Lorenz curve, which shows the cumulative percentage of income for each cumulative percentage of population. In Belgium, the poorest decile of the population earns barely 3.5 p.c. of disposable income, whereas the top decile takes home 22.3 p.c. If the distribution of income were strictly uniform, we would get a bisector and each decile would earn exactly 10 p.c. of disposable income. In the opposite case, in which all available income was concentrated in the hands of a single individual, the Lorenz curve would be reduced to the axes. The area between the bisector and the Lorenz curve thus constitutes a measurement of income distribution inequality. The most widely known measure, the Gini coefficient, is obtained by multiplying the area between the Lorenz curve and the bisector by two in order to standardise the figure between a value of zero for uniform distribution and 100 p.c. for a perfectly concentrated distribution.

Among EU15 countries, Belgium's distribution of disposable income is slightly more egalitarian than the average, with a Gini coefficient of 28 p.c., compared with a European average of 30 p.c. Austria and the Nordic countries (Sweden, Denmark and Finland) are the most structurally egalitarian, whereas the greatest concentrations of income are in Greece, the UK and Portugal.

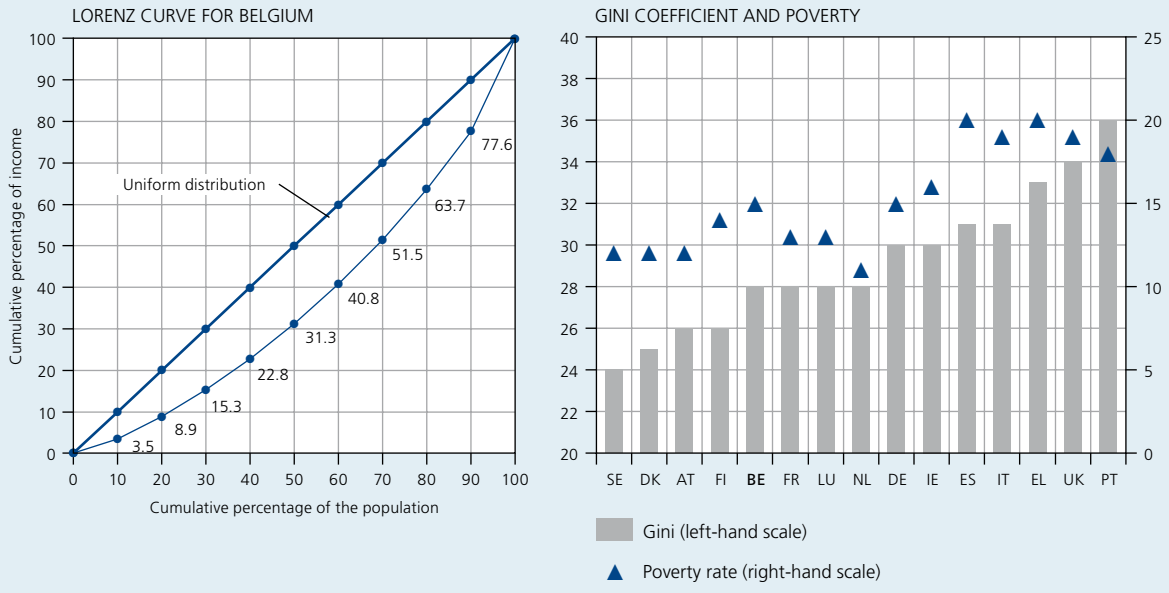
As shown in Chart 1, there is a clear relationship between the degree of income inequality and poverty, defined here as the proportion of individuals whose equivalent disposable income[(1)] is 60 p.c. below the median income. We will now take a closer look at the lowest deciles of income distribution

2. Concepts and measures of poverty

There are **many definitions of poverty**, which can be expressed in either absolute or relative terms. **In absolute terms**, poverty is associated with material deprivation and, as a result, the poverty line is defined as the minimum basket of goods and services that would enable an individual to escape from poverty. This definition is especially well suited to measuring poverty in developing countries, given that in those countries, much of the population survives on a bare minimum (Ravallion, 1998). One disadvantage of an absolute measure is that baskets of minimal goods and services are difficult to compare

(1) Equivalent disposable income, or income equivalent adult, allows us to compare the incomes of different sized households. Definitions of poverty rate and equivalent income are presented in section two.

CHART 1 INCOME DISTRIBUTION IN BELGIUM AND THE EU15 IN 2008



Sources: DGSEI, EC.

from one country to the next. The absolute poverty rate may also be defined as the percentage of the population with incomes below a certain level. The thresholds used by the World Bank are $1.25 and $2 per day.

A definition in terms of economic well being underlines the relative nature of poverty. In this case, a household is considered below the poverty line if it lacks enough income to participate adequately in the society in which it lives[1].

The simplest and most operational way to define the poverty line is to use a **percentage of the median income** or average income. This percentage is arbitrary. The chart below shows the poverty line defined as 40 p.c., 50 p.c. and 60 p.c. of the median income of the EU15 countries. As we can see, the choice of criteria has little impact on the ranking. For a larger sample, such as all OECD countries for example, this empirical observation remains true. By convention, the European Union has set the threshold at 60 p.c. of median income.

The income figure used is the median income per equivalent adult. In other words, the nominal income of each household is weighted based on coefficients specific to each household member[2] in order to measure the economic well being of each individual.

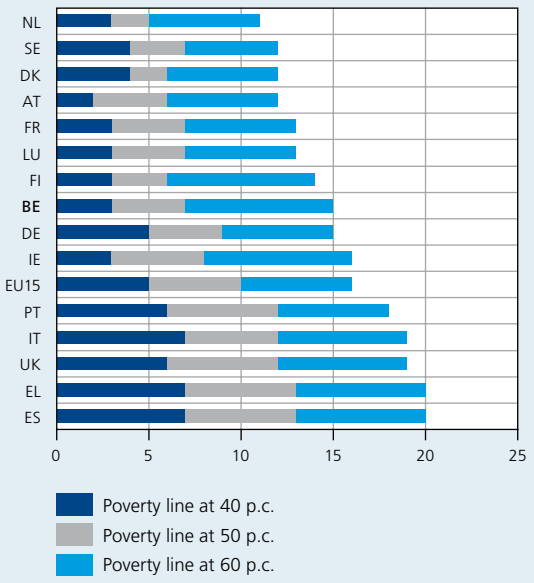
Monetary poverty indicators based on SILC data are not without their problems. In particular, disposable income does not take into account the implicit income of households that own their own home, i.e. imputed rent. Similarly, certain State-subdivised benefits (free public transportation for certain population categories, in-home care, etc.) are not considered part of disposable income. Given the considerable differences between countries and among sub-segments of the population in this respect, the failure to take these elements into account has an influence on country rankings, especially for the over-64 age group (see Committee for the study of ageing (2009) and below). The results of this calculation are also sensitive to the choice of equivalence scale, to the standard-of-living indicator (average or median income) and to the percentage of income designated as the poverty line. The thresholds of 40 p.c. and 50 p.c. of median income, which had been used frequently until the mid-1990s, result in a more favourable ranking for Belgium than the 60 p.c. threshold, which was not adopted officially until after the Laeken process in the early 2000s.

Another way of understanding poverty is to compare **living conditions** rather than disposable income. For example, lacking the goods and conveniences of modern life (adequate housing, meat for dinner, a car, television, etc.) due to insufficient financial resources is an indicator of poverty. There is still debate as to which items should be taken into account and the weight that each should be assigned. Poverty measures based on a material depravation and monetary poverty indicators are positively correlated, but the two measures are far from a perfect match (Guio, 2009).

A third class of poverty indicators relies solely on the **subjective assessment** of the people being surveyed. The proportion of the population answering that poverty is, in their view, widespread in the country constitutes a measure of perceived overall poverty.

The chart below shows that perceived poverty is only imperfectly correlated with the rate of poverty measured using relative income levels. Countries such as Spain or the UK, where the monetary poverty rate is high from a European perspective, earn an average ranking in terms of

CHART 2 RELATIVE POVERTY RATES IN THE EU15, 2008

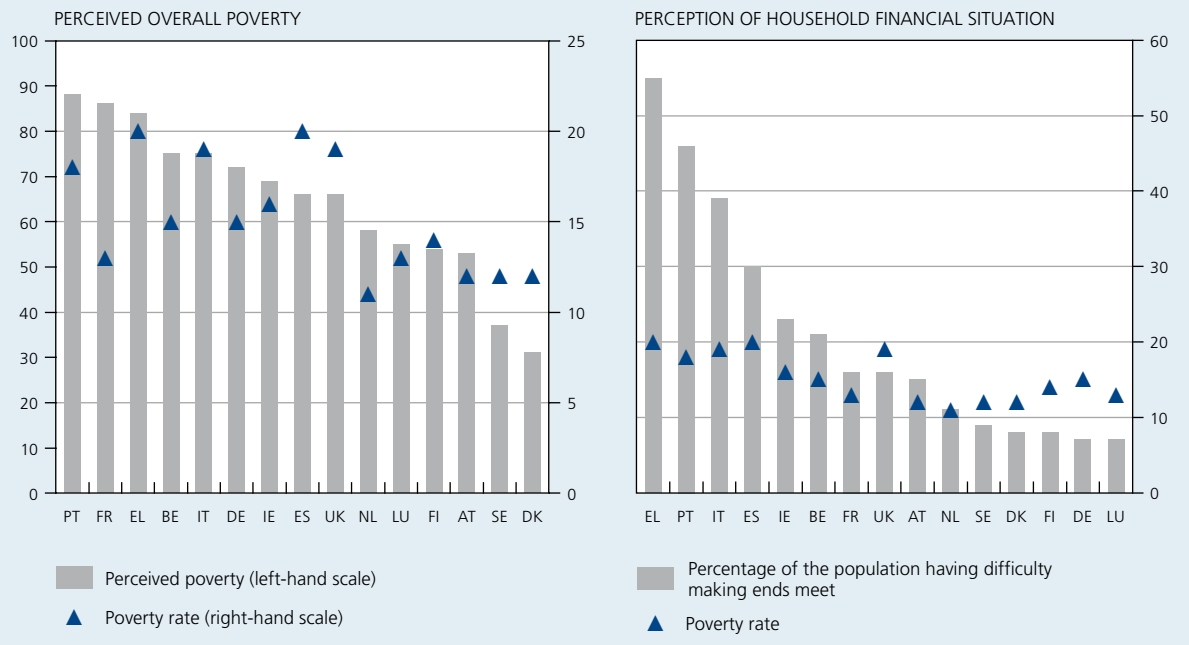


Source: EC.

(1) Galbraith J.K. (1958) gives the following definition: "People are poverty-stricken when their income, even if adequate for survival, falls markedly behind that of the community. Then they cannot have what the larger community regards as the minimum necessary for decency; and they cannot wholly escape, therefore, the judgement of the larger community that they are indecent", in *The Affluent Society*, The Riverside Press, Cambridge. This definition highlights the relative nature of poverty and introduces the idea of stigmatisation, which has implications for the policies used to fight poverty.

(2) The equivalence scale makes it possible to compare the incomes of different sized households by using a method for converting income into comparable units. The system of weighting that Eurostat uses for SILC data is a "modified OECD" scale, which assigns a weight of 1 for the first adult, 0.5 to other household members aged 14 or over, and 0.3 to children under the age of 14. For example, the income of a couple with two children under the age of 14 is divided by a coefficient of 2.1 (=1+0.5+0.3+0.3) for the purposes of comparison with the income of a single individual.

CHART 3 PERCEIVED POVERTY AND MONETARY POVERTY



Sources: EC (October 2009 Eurobarometer survey), EC (SILC).

perceived poverty. By contrast, in Belgium and France the perceived rate of poverty is significantly higher than what is shown by income statistics.

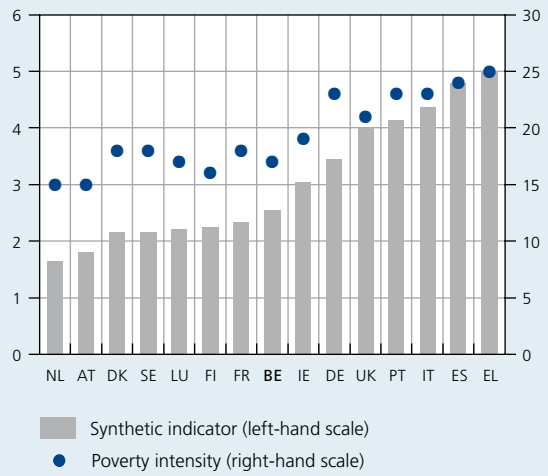
In the SILC survey, respondents are also asked to assess their own financial situation. This is another type of subjective perception of poverty risk. The question deals with the household's ability to balance its monthly budget. The proportion shown in the chart is that of households "having some difficulty or significant difficulty making ends meet".

As other studies confirm (for an overview, see Desrosiers et al., 2007), the monetary approach to poverty and households' perception of their financial situation only partially corroborate each other. The SILC survey does however reveal a high degree of correlation between the two indicators. Among Belgian households, 21 p.c. said that they had trouble making ends meet, which corresponds to the EU15 average. Certain countries, such as the UK, Germany and Finland, exhibit better correlation between households' subjective assessment and the monetary poverty rate. The lack of an exact correlation shows that economic resources are not the only factor that households use to gauge their financial situation. The household's social background and its insertion in society (notably via employment) are among the criteria households consider in assessing their financial situation. Also influential is the relative ease with which poor families can rely upon an informal network of assistance in case of need (sharing child care, material support, etc.). The level of informal solidarity or assistance in kind likely varies from one country to the next.

Furthermore, the Directorate General Statistics and Economic Information of FPS Economy (DGSEI, 2010) notes that the proportion of households with difficulties making ends meet increased significantly in Belgium between 2007 and 2008, although the poverty rate remained virtually unchanged. The proportion of households claiming that it was somewhat, moderately or very difficult to balance their budget rose from 34 p.c. in 2007 to 44 p.c. in 2008. This weakening of households' perceived financial situation is attributable to an increase in the number of households above the poverty line perceiving difficulty, whereas the proportion of poor households claiming difficulty making ends meet remained roughly the same.

While recognising that different approaches (monetary poverty, material deprivation and subjective poverty) contribute to a better understanding of the true nature

CHART 4 INTENSITY AND SYNTHETIC INDICATOR OF MONETARY POVERTY IN THE EU15 IN 2008



Source: EC.

of poverty, we have chosen to use only monetary indicators of poverty, notably because they are more easily comparable across countries and across segments of the population.

Apart from the poverty rate, i.e. the proportion of persons living below the monetary poverty line, two other indicators are also frequently used. Poverty intensity measures the severity of monetary poverty among the poor and is defined as the gap between the average income of poor households and the poverty line, expressed as a percentage of the poverty line. The synthetic indicator takes into account both the rate and the intensity of monetary poverty. Belgium ranks in the middle of the EU15 countries in terms of both risk of poverty, measured by the poverty rate, and poverty intensity.

3. Poverty in different segments of the population

Monetary poverty varies among countries, but also among socioeconomic groups within each country. In Belgium the poverty rate for the overall population is 15 p.c., but the proportions are very different when we break down the population by sex, age, household size or employment status.

For the working-age population, employment status is the key variable in explaining differences in poverty rates among subsegments. The table below shows the poverty rate for working-age individuals, in this case those aged 18 to 64, broken down by type of household (with or without children) and employment status. The SILC data make it possible to precisely determine a household's "work intensity" on a scale of 0, for a situation in which no working-age member of the household has worked during the reference year, to 1, if all working-age members of the household were employed throughout the year.

Among childless households in Belgium, the prevalence of poverty for the working-age population varies between 34 p.c. and 3 p.c. depending on the employment situation. The range is twice as large for households with children: from a poverty rate of 71 p.c. for households with a work intensity of zero, which is the highest rate among EU15 countries, to a rate of 4 p.c. for households with children where all working-age adults were employed during the reference year, which is one of the lowest rates among EU15 countries.

Throughout the EU15, households whose working-age members all work encounter very little poverty. The average rate is 5 p.c. for childless households and 6 p.c. for families with children. The poverty rate for unemployed households is six times higher on average, and nine times higher for households with dependents. In every country examined, poverty rates almost always decline steadily as a function of household work intensity.

One finding of this research is that employment is far and away the best protection against poverty. This is particularly true of Belgium, where households with a work intensity of 100 p.c. enjoy the lowest poverty rate in the EU15, regardless of whether or not they have children in the home.

However, there remain some differences among countries, even for households with a maximum work intensity, which shows that employment is not the only way to fight poverty. Certain southern European countries, such as Greece or Portugal, have a non-negligible percentage of working poor, whereas the UK and Ireland exhibit a significant poverty rate among households with children and a maximum work intensity.

The other key to explaining differences in poverty within the working-age population is the type of household, which is to say its size and composition. As the table shows, the poverty rate among adults aged 18 to 64 is always highest among households with children. The differences are especially pronounced among households that are unemployed or have a low work intensity, whereas they are slim to nonexistent for households with

TABLE 1 POVERTY RATE BROKEN DOWN BY LABOUR MARKET STATUS AND HOUSEHOLD TYPE, 2008 (1)

(persons aged 18 to 64 years)

	Households with children				Households without children			
	Work intensity (2)							
	0	< 0.5	> 0.5	1	0	< 0.5	> 0.5	1
Germany	66	31	10	5	50	28	10	5
Austria	59	25	11	5	27	15	10	3
Belgium	71	42	12	4	34	14	4	3
Denmark	49	21	8	4	27	29	6	5
Spain	61	52	24	8	41	27	9	5
Finland	58	42	8	5	39	32	7	4
France	67	43	14	5	20	20	6	5
Greece	38	48	26	10	30	26	13	9
Ireland	47	35	10	7	45	11	6	3
Italy	63	41	24	5	33	17	6	5
Luxembourg	51	41	18	8	19	22	9	5
Netherlands	50	18	9	5	22	17	6	4
Portugal	70	41	27	9	32	23	8	8
United Kingdom	53	50	23	8	40	36	14	5
Sweden	64	34	13	5	28	34	9	6
EU15	60	43	19	6	36	23	9	5

Source: EC.

(1) 2007 for France. Data for the UK and EU15 are provisional.

(2) Household work intensity is the relationship between the number of months in which working-age members of the household worked to the theoretical maximum number of months the household could have worked during the reference year. The classes of work intensity range from 0 (unemployed household) to 1 (fully employed household).

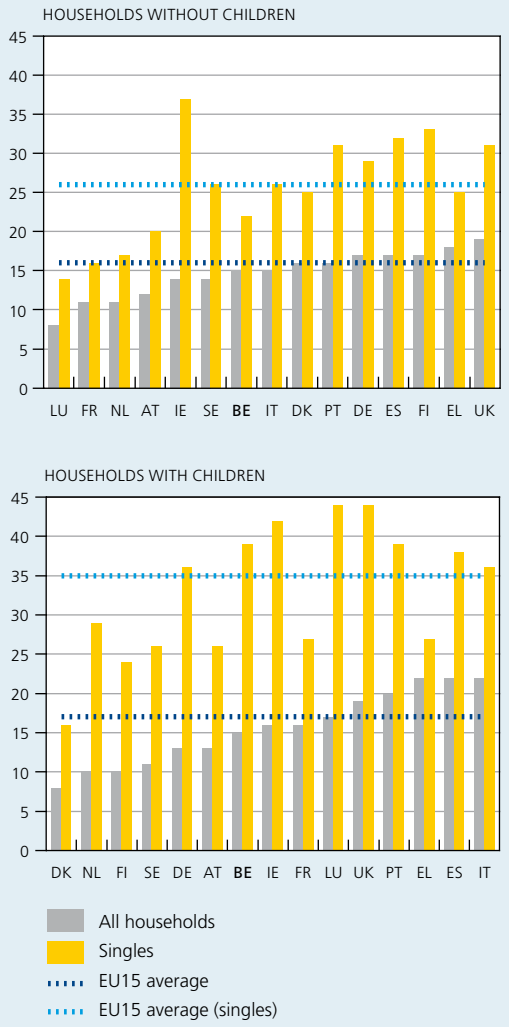
a maximum work intensity. For example, the difference depending upon the number of dependents for unemployed households is 24 percentage points on average in the EU15, and is 47 points in France, 37 points in Belgium and 36 points in Sweden, whereas it is more limited in Germany, Ireland or the UK.

If we compare the situation of households with children with that of childless households across the entire population, distinguishing within the two groups single individuals with or without dependents, it is clear that in the EU15 the average poverty rate of households with children is fairly similar to that of childless households: the difference is one percentage point. The difference is nonexistent in Belgium and is around 5 points in Luxembourg, Italy, France, Spain and Greece. By contrast, in the Scandinavian countries and Germany, the poverty rate is slightly higher among childless households.

In the two groups analysed in Chart 5, households with only one adult are exposed to a significantly above-average risk of poverty. Among single individuals in the EU15, the rate is 1.5 times higher for households without children and more than double for single parents. For example, in Belgium the risk of poverty is 39 p.c. for a single parent and 22 p.c. for singles without children, whereas it is 15 p.c. for households as a whole.

SILC data also show that the number of children in a household exponentially increases the risk of poverty, especially for households with more than two dependent children. Family policies in Belgium appear to be relatively effective because, even thought the poverty rate is 8 points higher for households with three or more children compared with one-child households, the difference is 12 points on average in the EU15. The UK and southern European countries exhibit much larger spreads, in the neighbourhood of 16 to 29 points.

CHART 5 POVERTY RATE BY TYPE OF HOUSEHOLD, 2008
(total population)



Source: EC.
(1) Data for the UK and the EU15 are provisional.

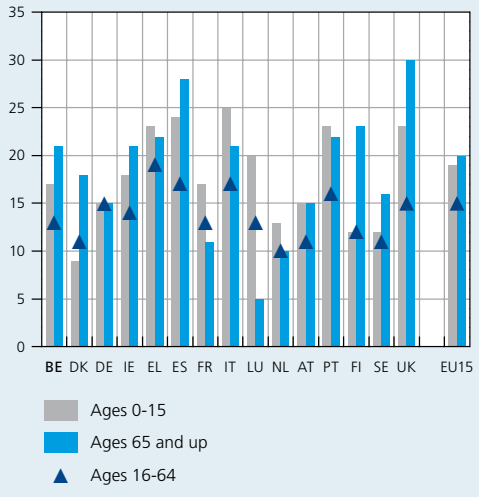
If we break down poverty rates by age group, Belgium is close to the European average. Child poverty, i.e. the risk of poverty among children under the age of 16, is 17 p.c. in Belgium compared with an EU15 average of 19 p.c. In every country except Denmark, the child poverty rate is higher than the rate for persons aged 16 to 64. However, the differences are fairly small, around 4 points. They are significantly higher in southern European countries and the UK. Apart from family policies, the factors that help explain child poverty are type of household and parents' labour market status. As we have seen single parents are much more exposed to poverty than households with at least two working-age adults. The number of dependent children also plays a role, albeit a more limited one. Child poverty is also linked to parents' employment status. In every country, the poorest children are those in unemployed single-parent households.

The poverty rate for individuals over age 65 is also significantly higher than that of working-age persons. In Belgium, where the prevalence is 21 p.c. compared with 20 p.c. in the EU15, this group is above the European average for poverty rates, unlike the 0-15 and 16-64 age groups.

In every EU15 country except Luxembourg and France, the poverty rate for seniors is higher than for the 16-64 age group. As the legal retirement age in a majority of European countries is set at 65, most individuals in this age group are retired. In Belgium the legal retirement age for women has been gradually raised since 1997: in January 2009 it increased from 64 to 65, the same as for men. Apart from the fact that the disposable income of households aged 65 and over is generally limited to a retirement pension, the heightened risk of poverty among seniors is attributable to household composition. A large proportion of persons over age 65 live alone. For example, in Belgium around 40 p.c. of persons over age 75 are married. The majority are widowed, single or divorced.

With a gross replacement rate for the average male worker of around 40 p.c.[(1)], retirement pensions are relatively low in Belgium: the rate is similar in Germany but much higher

CHART 6 POVERTY RATE BY AGE GROUP, 2008



Source: EC.

(1) OECD data (2009).

in the rest of Europe, with the exception of Ireland and the UK. That said, there are other factors to consider with respect to seniors and poverty. SILC data are based on household equivalent income and do not reflect perfectly differences in wealth, which can be considerable. While there is a lack of precise data, the over-64 age group is considered to have significantly more assets on average than the other age groups. The proportion of individuals who own their home or other real estate assets is higher in this age group than in the rest of the population. According to the latest census data in Belgium, the rate is 76 p.c. for the over-65 age group compared with 71 p.c. for the 35-54 age group and 46 p.c. for the under-35 age group. If the implicit income in the form of imputed rent had been taken into account for home-owning households, DGSEI has calculated that the poverty rate for individuals over age 65 would have been 21 p.c. instead of 13 p.c.

The intensity of poverty among persons age 65 and over in Belgium is around 14 p.c., significantly less than the EU 15 average of 18 p.c. Among the elderly poor, the gap between the median income and the poverty line is much wider in Germany, southern European countries and the UK. Belgium's good ranking in this regard would be even higher if the implicit income of home-owning households were taken into account in SILC surveys.

With a poverty rate of 16 p.c. in Belgium, women face a 2 percentage point higher risk of poverty than men, which is the same as the EU15 average. This difference is mainly related to age, since women have a higher life expectancy and a greater probability of living alone following their husband's death. There are also more women running single-parent families.

SILC data also make it possible to calculate poverty rates by region. At 10.1 p.c., Flanders boasts one of the lowest poverty rates in the EU15, whereas Wallonia's 19.5 p.c. is 3 points above the European average. Brussels' position is extreme, with a poverty rate of 28.2 p.c., but that figure may not be reliable because the subsample of the SILC survey for Brussels is very limited[1].

The differences among regions principally reflect differences in employment levels. Whereas the harmonised unemployment rate in 2008 in Flanders was 3.9 p.c., it was 10.1 p.c. in Wallonia and 16 p.c. in Brussels. Among corresponding working-age populations, 44.4 p.c. of persons aged 15 to 64 were unemployed or inactive in Brussels, compared with

(1) The DGSEI has estimated regional poverty rates, with a corresponding confidence interval of 95 p.c in parentheses: Brussels 28.2 (21.6 to 34.7), Flanders 10.1 (8.4 to 11.8) and Wallonia 19.5 (16.6 to 22.4).

(2) Regional demographic data are for 2007. They are published in the "Indicateurs Statistiques de la Région de Bruxelles-capitale" brochure put out by the Brussels Institute for Statistics and Analysis (*Institut bruxellois de statistique et d'analyse*, www.statbru.irisnet.be).

TABLE 2 POVERTY RATE IN BELGIUM BY AGE GROUP WITH OR WITHOUT ACCOUNT TAKEN OF THE IMPUTED RENT, 2008

	Poverty rate	Poverty rate taking into account the imputed rent
Total	**14.7**	**13.3**
of which:		
Ages 16-64	12.2	11.7
Ages 65 and up	21.3	13.2

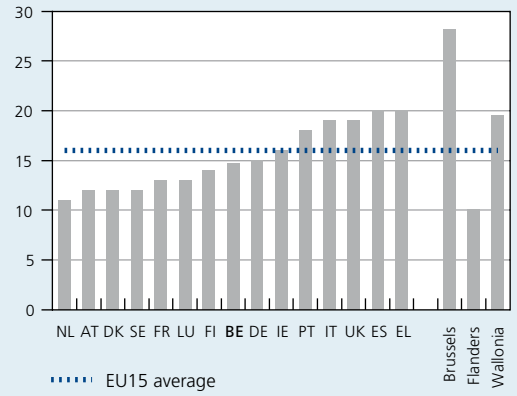
Source: DGSEI.

42.8 p.c. in Wallonia and one person in three in Flanders. As we saw earlier, employment is good protection against poverty; it is not surprising that the relative weakness in Wallonia and Brussels is directly reflected in the poverty rates of the working-age population in those regions. The same observation could be made with respect to child poverty, because parents' employment status is the determining factor.

In the working-age population, the proportion of low-skilled workers, or those individuals with an inferior secondary school diploma, is also higher in Brussels and Wallonia, at 37 p.c. of the 15-64 age group, compared with only 31 p.c. in Flanders.

Demographic structure[2] also differs considerably among the regions, but to a lesser extent than indicators linked to the labour market. The proportion of individuals aged 65

CHART 7 POVERTY RATES IN BELGIUM AND ITS REGIONS, 2008



Sources: DGSEI, EC.

and over is slightly higher in Flanders: 17.8 p.c. compared with 16.5 p.c. in Wallonia and 14.8 p.c. in Brussels. The population of the Brussels-Capital region is generally younger. However, the percentage of the population under age 18 is 22 p.c., roughly the same as in Wallonia, whereas it is less than 20 p.c. in Flanders.

The breakdown by type of household also differs among the three regions. The average household comprises 2.4 persons in Flanders, 2.3 in Wallonia and only 2 in Brussels. This is notably attributable to the much higher percentage of single persons living in Brussels. They represent 49.6 p.c. of the population, compared with 34.6 p.c. in Wallonia and 29.6 p.c. in Flanders. The proportion of the potentially most vulnerable type of household, single-parent families, also varies: 17 p.c. in Wallonia, 14 p.c. in Brussels and 12 p.c. in Flanders.

Brussels is also characterised by a higher percentage of foreign individuals and individuals of foreign origin than in Flanders or Wallonia. According to administrative data from 2007, the percentage of foreigners – all nationalities combined – was 27.5 p.c. in Brussels compared with 9.2 p.c. in Wallonia and 5.4 p.c. in Flanders. Foreigners from outside the EU and individuals of foreign origin are less fully integrated in the labour market.

The occupancy status of housing is also fairly different from one region to the next, with census data from 2001 showing less than 43 p.c. of housing occupied by the owner in Brussels, whereas the figure was 70 p.c. in Wallonia and 74 p.c. in Flanders.

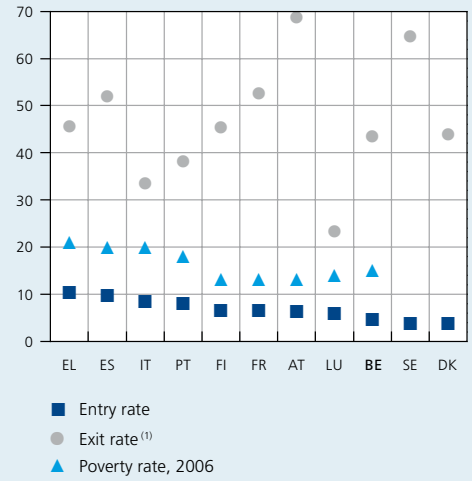
As a large urban community, the Brussels-Capital region also acts as a magnet for the most vulnerable populations, which are hard to detect in a survey such as the SILC. It is difficult for a census to account for persons living in extreme poverty, on the margins even of social assistance institutions. As a result, there is no national accounting of homeless individuals. The most recent estimates, reported in the 2010 Pan-Inclusion Report, show 2,800 homeless (0.3 p.c. of the population) in the Brussels region, 10,400 (0.2 p.c.) in Flanders and 18,000 (0.5 p.c.) in Wallonia.

4. The dynamics of poverty

In the previous section we showed that employment status, household type and age are the factors that most accurately predict exposure to risk of poverty at a given moment. The condition of poverty can vary over time for a single individual. At any given time, certain individuals are joining the ranks of the poor while others are leaving. As a result, the rate of persistent poverty (lasting more than two consecutive years) is lower than the poverty rate measured at a specific point in time, and the proportion of individuals who have experienced poverty is higher.

CHART 8 EU POVERTY ENTRY AND EXIT RATES, FROM YEAR *T-3* TO YEAR *T*

(percentages)



Sources: EC, Van Kerm and Noel Pi Alperin (2010).
(1) Confidence intervals around poverty exit rate estimates are broad.

Chart 8 is based on SILC longitudinal data, which are available for the period 2004 to 2007. The poverty entry rate is defined as the proportion of poor persons during year t that were not poor in year *(t-3)*. The poverty exit rate is defined as the proportion of persons who were poor in year *(t-3)* but are no longer poor in year t.

There is a significant differentiation among the poverty entry rates of European countries. The same is true of poverty exit rates[1]. Van Kerm and Noel Pi Alperin (2010), furthermore, indicate that the confidence intervals calculated using SILC data are particularly broad – especially with respect to exit rates – which shows how hard it is to estimate these indicators, given that it is not easy to follow households over time.

Nevertheless, we see a pronounced correlation between the entry rate (flow concept) and the poverty rate (stock concept). The expected negative correlation between the exit rate and the poverty rate exists, but is not statistically significant for the 11-country sample used here[2]. Van Kerm

(1) The coefficient of variation, which is a standardised measure of dispersion and is calculated as the ratio between the standard deviation and the average, shows that the standardised dispersion of entry rates is slightly higher than that of exit rates.
(2) Data for the Netherlands, Germany, the UK and Ireland are not available over the four years needed to make these estimates.

and Noel Pi Alperin (2010) found no systematic correlation between the exit rate and the poverty rate and other indicators of income mobility over time in the various countries.

Belgium is among the countries with the lowest poverty entry rates along with Denmark and Sweden, whereas a much greater percentage of the population encounters poverty in Greece, Spain, Italy or Portugal. By contrast, the poverty exit rate in Belgium is on the weak side of the European average. Getting out of poverty appears to be easier in Austria and Sweden, but also in France and Spain. We note that it is possible, as illustrated by Sweden, to obtain good results in terms of both a low poverty entry rate and short periods of poverty.

Thus, there is a fairly significant turnover in the poor population, although as we have seen, the extent varies considerably from one country to the next. While empirical studies are not unanimous, it also appears that the longer a period of poverty lasts, the harder it is to emerge from. Similarly, having been poor in the past affects both one's poverty entry rate (positive) and one's exit rate (negative). Lastly, other factors not identified in the data of surveys like the SILC also play a significant role.

There are few studies based on internationally comparable data that make it possible to quantify the impact of events that lead to poverty or those that help individuals overcome poverty. According to the OECD (2008), the factors most likely to cause an episode of poverty are significant family, social or professional changes. Changes in family structure, such as a divorce, the birth of a child or taking in a dependent parent, or a drop in the number of working household members explain a substantial portion of new poverty cases. On the other hand, the factors that allow households to overcome poverty are generally an increase in household work intensity or change in household composition (marriage, etc.). Persistent poverty chiefly affects those segments of the population least likely to encounter those kinds of events, such as the over-65 age group and children. The De Blander and Nicaise study (2009) conducted using data from the Panel Study of Belgian Households highlights the importance of education in the dynamics of poverty.

According to the OECD, mobility is very weak at the extremes of the income scale : the proportion of individuals who manage to remain in the uppermost quintile or remain stuck in the lowest quintile is close to 70 p.c. on average, and only a very small portion of poor individuals ever manage to move up the income scale.

Lastly, there is one condition in particular that tends to draw households into financial difficulties – overindebtedness. The Central Individual Credit Register of the National Bank of Belgium is a tool for combating excessive household debt. However, privacy laws with respect to the handling of personal information make it impossible to use these data to draw a portrait of overindebted individuals.

The Banque de France (2009) conducts surveys specifically designed to highlight the major quantitative and sociological changes linked to overindebtedness. These surveys show that passive overindebtedness, i.e. related to an "accident of life" such as joblessness, sickness or divorce, is much more prevalent than active overindebtedness, i.e. excessive use of credit. Overindebtedness is passive in three-quarters of cases. The loss of a job is the predominant trigger in cases of overindebtedness (32 p.c. of cases observed), ahead of the other key factors of divorce/separation (15 p.c.) and sickness/accident (11 p.c.). The relative weakness of overindebted households' resources and their lack of assets make them very vulnerable to the vagaries of life.

Conclusions

Surveys of income and living conditions have given us a harmonised source from which to derive a picture of inequalities and poverty in Belgium and in Europe. The distribution of disposable income appears to be slightly more egalitarian in Belgium than the EU15 average, and some 15 p.c. of the population is living below the poverty line in our country, compared with 16 p.c. in the EU15.

The perceived poverty rate – based entirely on the subjective assessment of the persons surveyed – is much higher in Belgium than the poverty rate based on relative incomes. This is also the case in France, whereas the reverse is true in the UK. This is partly a reflection of social values and the degree of informal solidarity upon which the poorest families may rely.

For households with working-age adults, employment offers good protection against poverty, provided enough hours are worked at a sufficient wage. Belgium's minimum wage tends to limit the number of working poor. It is confined to situations in which individuals cannot find steady work and so oscillate between work, unemployment and inactivity, or can only find part-time work that does not provide a necessary income.

The importance of employment status is notably illustrated in Belgium by the differences between poverty rates in the three regions, although other factors also play a role, such as differences in demographic composition (type of household, etc.) or housing occupancy status.

Disposable income as reported by the SILC survey does not include home-owning households' implicit income in the form of imputed rent. Similarly, certain State-subsidised benefits (free public transportation for certain population categories, in-home care, etc.) are not considered part of disposable income. Differences between countries and among sub-segments of the population in this respect inevitably influence results, particularly for the elderly.

As in the other EU15 countries, single parents are at the highest risk of poverty. The poverty rate among single-parent families in Belgium is noticeably higher than the EU15 average, and the situation is especially critical among households with a low work intensity. This may indicate that single-parent families still do not have adequate access to childcare services.

In Belgium, as in many other European countries, the proportion of retirees living under the poverty line is higher than among the working-age population. However, because the elderly tend to have more assets than younger individuals, their situation is not as bad as the comparison of poverty rates suggests.

Education is a key factor with respect to employment. A high level of education goes hand in hand with a reduced likelihood of becoming poor or staying poor for long periods of time. Ensuring access to quality education for all is thus crucial for promoting equality of opportunity.

Longitudinal data show that at any given moment, a large number of individuals are falling into or getting out of poverty. By comparison with other European countries, Belgium has a very low poverty entry rate, but it also has a fairly low poverty exit rate. Thus, poverty in Belgium is more persistent than the European average. However, data remain incomplete. In addition, it would also be useful to shore up surveys by collecting data on differences in households' net worth.

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Summaries of articles

Economic projections for Belgium – Spring 2010

The global economic recovery which had begun in mid 2009 has continued, though its strength has varied from one region to another. The emerging economies have been the driving force, propelling the revival of international trade, while the upturn is likely to be more gradual in the advanced economies, as is generally the case after economic recessions accompanied by a financial crisis. The euro area has also returned to positive growth since mid 2009, but this growth has been far less dynamic than in the rest of the world. Moreover, the increase in budget deficits and public debt has given rise to fears over the sustainability of public finances in some countries, causing renewed tensions on the financial markets.

In Belgium, activity also started to pick up from the third quarter of 2009, although the pace remained moderate. Altogether, however, the decline in GDP of 3 p.c. in 2009 was slightly smaller than in the euro area as a whole, and growth is estimated to be a little more sustained this year and next. According to the projections, it will reach 1.3 p.c. in 2010 and 1.7 p.c. in 2011. At first, it is likely to be underpinned by foreign demand, while consumption and, later, investment should gradually gather momentum.

The labour market has displayed some resilience, considering the seriousness of the economic recession. Job losses and the rise in unemployment were limited by large-scale use of temporary lay-offs and by a sharp fall in corporate productivity. However, since these factors are likely to return to normal, the reduction in employment is projected to continue in 2010. Net job losses are estimated at 12,900 persons in the course of the year, following a decline of 38,500 units during 2009. Employment should resume growth during 2011. The unemployment rate increased from 7 p.c. in 2008 to 8 p.c. in 2009; it is forecast at 8.8 p.c. in 2011.

Following a brief period of disinflation during 2009, resulting from negative base effects influencing the movement in energy prices, inflation began rising again at the end of last year and during the initial months of 2010, owing to the recent rise in international oil prices and the euro's depreciation. While this factor will continue to play during the coming months, the pressures exerted by wages are expected to be contained at first, before gathering strength at the end of the forecasting period as economic activity picks up. In all, as an annual average, inflation – which had been zero in 2009 – is forecast at 2 p.c. in 2010 and 1.9 p.c. in 2011.

According to the NAI data, Belgium's public finances recorded a deficit of 6 p.c. of GDP in 2009. In the macroeconomic context described above, and taking account of the measures adopted by the federal and regional governments, if the policy remains unchanged that deficit should come to 5 p.c. of GDP in 2010 and 5.3 p.c. in 2011. After having declined continuously since 1993, to reach

84.2 p.c. in 2007, the ratio of public debt to GDP has been rising again in 2008, mainly as a result of the capital injections and loans granted to financial institutions, and in 2009, due to the economic recession. The debt ratio is projected to rise further, although at a slower pace, over the projection horizon, from 96.8 p.c. of GDP in 2009 to 100.2 p.c. in 2010 and 103.1 p.c. in 2011.

JEL Codes : E17, E25, E37, E66

Key words : Belgium, macroeconomic projections, Eurosystem

Belgium's position in world trade

The objective of the article is to give a general overview of the position that Belgium occupies in the world trade stakes and its ability to adjust in response to changes in the international environment. Over the last two decades, world trade has expanded considerably, buoyed up by the rapid growth of new economic centres, the advanced economies generally having seen a drop in their market share. However, the growth in Belgium's exports has lagged behind the average for twelve European countries going through the same major changes ; and the loss of market share has been higher than the average.

A classical econometric analysis of price competitiveness shows up the limited role of relative export prices as a determinant in gains/losses of market share. This finding mainly reflects the fact that prices are largely fixed on international markets, producers cannot adjust their export prices according to the costs that they have to bear. In this context, a reasonable development of production costs, and with stronger reason wage costs, is essential in order to ensure the continuity of export activities.

Beyond relative price effects, it is necessary to take into account structural elements in order to explain changes in market share. From this standpoint, it appears that the type of production has a crucial role to play. Faced with competition from emerging economies, Belgium's external trade performance in the case of standardised products has been well below world demand. On the other hand, high-value-added products or those of a highly innovative nature or with a high research content are the ones that enable it to maintain or improve on its position in global trade.

Export activities and innovation share some common features, not least because they are concentrated in the hands of a small number of large enterprises. In view of the high foreign market entry costs, the best performing firms are the ones that tend to be the exporters. However, factors such as the innovative nature of products on offer can of course influence the likelihood of success on foreign markets. Here, innovation efforts by Belgian firms are not creating enough opportunities for marketing new products. Yet, it is most certainly goods with a high value added or highly innovative products that Belgium will be able to count on to ensure sustainable economic development and to support the prosperity of its people.

JEL Codes : F14, O30, D21

Key words : competitiveness, market share, export price, innovation, R&D

What lessons can be drawn from the Wage Dynamics Network ?

The Wage Dynamics Network (WDN) is a temporary research network with the main objective of identifying the characteristics of wage dynamics and drawing conclusions from them in monetary policy terms. The paper presents the main findings of this research work. Notably, the intersectoral wage differential can be partly attributed to differences in profitability and the degree of competition to which the sectors are exposed. Nominal wages are adjusted less frequently than prices and adjustments generally tend to be made at regular intervals rather than in response to the economic climate. Wage rigidity not only affects existing workers, but also new recruits. The euro area, and Belgium in particular, is marked more by rigid real wages than nominal wages. Real wage rigidity implies a low optimal inflation rate and tends to complicate the conduct of monetary policy since it triggers greater fluctuations in output and employment and makes inflation more persistent. Furthermore, in a monetary union, countries with higher real wage rigidity suffer a loss of competitiveness in the event of negative productivity shocks. Institutions underlying wage-setting generally play an important role in the way in which firms and economies react to shocks. The heterogeneity of these institutions within the euro area therefore presents a real challenge for monetary policy.

JEL Codes : D21, J30, J31, J60

Key words : firms' behavior, wage rigidity, employment, monetary policy, labour market flexibility, labour market institutions, economic shocks

Negative economic profitability in non-financial corporations

The article describes the characteristics of firms with negative economic profitability. Analysis of the pattern of profitability during the period from 1999 to 2008 on the basis of the annual accounts of non-financial corporations shows that, year after year, one in ten firms makes a loss, and in the case of SMEs that figure is actually as high as one in four firms. These findings require further investigation.

For the majority of non-financial corporations (85.6 p.c.) the period of negative economic profitability does not persist for longer than 4 years. Negative economic profitability is proportionately more common for firms in the non-manufacturing sectors than in manufacturing industry. Analysis by firm size, distinguishing between large firms and SMEs, reveals that SMEs are proportionately more affected. If age is considered, large firms with negative economic profitability are 2 to 3 years younger, on average, than other firms, whereas age is not a factor in the case of SMEs. In regard to regional location, the Brussels Capital Region has the highest ratio of firms with a negative profitability.

For most firms, the negative sign of the profitability ratio can be attributed to the firm ending the financial year with an operating loss. Within that group of firms with a negative operating result, as many as 33.1 p.c. of large firms and 44.9 p.c. of SMEs fail to generate any value added. Ultimately, in the case of 30.8 p.c. of the large firms and 42.1 p.c. of the SMEs, the net assets had fallen below the specified minimum, so that – under the alarm bell procedure – any interested party can apply to the court for dissolution of the company.

JEL Codes : D39, G30, L60, L80

Key words : firms' results, financial structure, distribution analysis, sectoral analysis

Poverty in Belgium

The EU Statistics on Income and Living Conditions (SILC) surveys gives a harmonised source of data making it possible to get a good idea of inequality and poverty, at both the Belgian and European levels. Disposable income distribution appears to be slightly more egalitarian in Belgium than the EU15 average, and around 15 p.c. of the population lives below the poverty line in our country, compared with 16 p.c. in the EU15 as a whole

Poverty can be defined in many different ways. The rate of monetary poverty corresponds to the percentage of the population with an income below the poverty line. The European Union has conventionally set this threshold at 60 p.c. of the median income. Other approaches (such as that based on material deprivation and the subjective approach, subjective in the sense that it relies on the personal perception of the people being surveyed) contribute to a better understanding of the true nature of poverty but they are not a perfect match. The perceived rate of poverty is thus higher in Belgium and France than the poverty rate based on relative income, whereas the reverse is true in the United Kingdom. The monetary poverty indicators calculated on the basis of the SILC surveys are given preference in this article, even though they are not immune to problems. In particular, disposable income as calculated from the SILC surveys does not take account of several components, including the imputed rent for households that own their home.

For households with members of working age, employment offers good protection against poverty, provided a high enough number of hours are worked at an adequate wage level. In Belgium, the minimum wage tends to limit the number of working poor. So, households with a full 100 p.c. work intensity rate in our country enjoy the lowest poverty rate in the EU15, regardless of whether or not they have children in the home.

Single parents make up the category of households at the highest risk of poverty. The proportion of retirees living below the poverty line is also higher than that among the population of working age. The situation as regards the elderly nevertheless needs to be put into perspective because proportionally more of these people own their home than among the rest of the population.

Education is a key factor for employment. A high level of education goes hand in hand with a lower likelihood of both falling into poverty and remaining poor for long periods of time. Ensuring access to quality education for all is thus essential for promoting equal opportunities. Longitudinal data show that, at any given moment, a large number of people are falling into or getting out of poverty. By comparison with other European countries, Belgium has a very low poverty entry rate, but it also has a fairly low poverty exit rate.

JEL codes : D31, D63, I32, J1

Key words : poverty, SILC, Belgium, EU

Abstracts of the working papers series

184. Discriminatory fees, coordination and investment in shared ATM network, by S. Ferrari, January 2010

The paper empirically examines the effects of discriminatory fees on ATM investment and welfare, and considers the role of coordination in ATM investment between banks. The main findings are that foreign fees tend to reduce ATM availability and (consumer) welfare, whereas surcharges positively affect ATM availability and the different welfare components when the consumers' price elasticity is not too large. Second, an organization of the ATM market that contains some degree of coordination between the banks may be desirable from a welfare perspective. Finally, ATM availability is always higher when a social planner decides on discriminatory fees and ATM investment to maximize total welfare. This implies that there is underinvestment in ATMs, even in the presence of discriminatory fees.

185. Self-fulfilling liquidity dry-ups, by F. Malherbe, March 2010

Secondary markets for long-term assets might be illiquid due to adverse selection. In a model in which moral hazard is confined to project initiation, the author finds that: (1) when agents expect a liquidity dry-up on such markets, they optimally choose to self-insure through the hoarding of non-productive but liquid assets; (2) such a response has negative externalities as it reduces ex-post market participation, which worsens adverse selection and dries up market liquidity; (3) liquidity dry-ups are Pareto inefficient equilibria; (4) the Government can rule them out. Additionally, when agents face idiosyncratic, privately known, illiquidity shocks, he shows that: (5) it increases market liquidity; (6) illiquid agents are better-off when they can credibly disclose their liquidity position, but transparency has an ambiguous effect on risk-sharing possibilities.

186. The development of monetary policy in the 20th century – some reflections, by O. Issing, April 2010

In the paper the author outlines – from a practitioner's as well as from a researcher's perspective – several of the key developments that took place during the last century in monetary policy. In particular, he describes how the monetary system evolved from gold standard, prevailing throughout most of the last century, to paper money and how the norm in central banking changed from pure discretion after World War II to transparency and independence. He furthermore analyzes how the exchange rate regime under Bretton-Woods impacted on countries' monetary policy and, with a

focus on Europe, how European Monetary Union (EMU) emerged from the European Monetary System (EMS). He then outlines today's relatively broad consensus on monetary policy and how it developed from a learning process on the side of central banks and important contributions from research. Finally, after arguing that the ECB's monetary policy which fruitfully combines past experience and current research is a successful and promising approach, he outlines some challenges lying ahead.

187. Getting rid of Keynes? A survey of the history of macroeconomics from Keynes to Lucas and beyond, by M. De Vroey, April 2010

The aim of the paper is to recount the ebbs and flows of Keynesianism over the history of macroeconomics. The bulk of the paper consists of a discussion of the main episodes of the unfolding of macroeconomics (Keynesian macroeconomics, monetarism, new classical macroeconomics, real business cycle models and new neoclassical synthesis models) against the background of a distinction between Keynesianism as a 'moderately conservative' (Keynes's words) vision about the working of the market system and as a conceptual apparatus. Particular attention is given to the contrast between Keynesian and Lucasian macroeconomics. The paper ends with a few remarks about the impact of the present crisis on the development of macroeconomic theory.

188. A century of macroeconomic and monetary thought at the National Bank of Belgium, by I. Maes, April 2010

"A century of macroeconomic and monetary thought at the National Bank of Belgium" traces the history of economic research at the National Bank of Belgium, from the early decades of the 20th century to its present functioning in the Eurosystem. The study also goes into the major economic policy debates, as well as the specific lines of macroeconomic and monetary thinking at the National Bank of Belgium. The focus is very much on the role of the Research Department in policymaking and its dialogue (and debates) with the academic community.

189. Inter-industry wage differentials in EU countries: What do cross-country time-varying data add to the picture?, by Ph. Du Caju, G. Gábor Kátay, A. Lamo, D. Nicolitsas, S. Poelhekke, April 2010

The paper documents the existence of inter-industry wage differentials across a large number of industries for eight EU countries (Belgium, Germany, Greece, Hungary, Ireland, Italy, the Netherlands and Spain) at two different points in time (in general, 1995 and 2002). It then looks into possible explanations for the main patterns observed. The analysis uses the European Structure of Earnings Survey (SES), an internationally-harmonised matched employer-employee dataset, to estimate inter-industry wage differentials conditional on a rich set of employee, employer and job characteristics. After investigating the possibility that unobservable employee characteristics lie behind the conditional wage differentials, a hypothesis which cannot be accepted, the paper considers the role of institutional features, as well as industry structure and performance in explaining inter-industry wage differentials. The results suggest that inter-industry wage differentials are consistent with rent-sharing mechanisms and that rent-sharing is more likely in industries with firm-level collective agreements and with higher collective agreement coverage.

190. What determines euro area bank CDS spreads?, by J. Annaert, M. De Ceuster, P. Van Roy, C. Vespro, April 2010

The paper decomposes the explained part of the CDS spread changes of 31 listed euro area banks according to various risk drivers. The choice of the credit risk drivers is inspired by the Merton (1974) model. Individual CDS liquidity and other market and business variables are identified to complement the Merton model and are shown to play an important role in explaining credit spread changes. This decomposition reveals, however, highly changing dynamics in the credit, liquidity, and business cycle and market wide components. This result is important since supervisors and monetary policy makers extract different signals from liquidity based CDS spread changes than from business cycle or credit risk based changes. For the recent financial crisis, the authors confirm that the steeply rising CDS spreads are due to increased credit risk. However, individual CDS liquidity and market wide liquidity premia played a dominant role. In the period before the start of the crisis, their model and its decomposition suggest that credit risk was not correctly priced, a finding which was correctly observed by e.g. the International Monetary Fund.

Conventional signs

_	the datum does not exist or is meaningless
e	estimate by the Bank
n.	not available
p.c.	per cent
p.m.	pro memoria

List of abbreviations

Countries

BE	Belgium
DE	Germany
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LU	Luxembourg
MT	Malta
NL	Netherlands
AT	Austria
PT	Portugal
SI	Slovenia
SK	Slovakia
FI	Finland
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
EE	Estonia
LV	Latvia
LT	Lithuania
HU	Hungary
PL	Poland
RO	Romania
SE	Sweden
UK	United Kingdom
EU15	European Union excluding the countries which joined after 2003
CH	Switzerland
CN	China
HK	Hong Kong
IL	Israel
IN	India

JP	Japan
RU	Russia
TR	Turkey
US	United States

Others

BIS	Bank for International Settlements
BRIC	Brazil, Russia, India, China
CI	Products where production predominantly requires capital
CIS	Community Innovation Survey
CPB	Centraal Planbureau – The Netherlands
DGSEI	Directorate General for Statistics and Economic Information Belgium (FPS Economy, SMEs, Self-employed and Energy)
DRI	Difficult-to-imitate products incorporating a substantial level of research and innovation
DNWR	Downward nominal wage rigidity
DRWR	Downward real wage rigidity
EC	European Commission
ECB	European Central Bank
EDP	Excessive Deficit Procedure
EFTA	European Free Trade Association
EPL	Employment protection legislation
ERI	Easy-to-imitate products incorporating a substantial level of research and innovation
ESA	European System of Accounts
ESCB	European System of Central Banks
EU	European Union
EU2020	10-year strategic plan of the European Union (2010-2020)
FPB	Federal Planning Bureau
FPS	Federal Public Service
FSP	Federal Science Policy
GDP	Gross domestic product
HBS	Household Budget Survey
HICP	Harmonised index of consumer prices
HWWI	Hamburgisches Welt-Wirtschafts-Institut
IMF	International Monetary Fund
IPN	Inflation Persistence Network
LI	Products where production predominantly requires labour
MSCI	Morgan Stanley Capital International
NACE	Statistical classification of Economic Activities in the European Community
NACE-Bel	Nomenclature of economic activities in the European Community, Belgian version
NAI	National Accounts Institute

NBB	National Bank of Belgium
NCB	National Central Bank
NEO	National Employment Office
NSSO	National Social Security Office
OECD	Organisation for Economic Cooperation and Development
Pn	nth percentile
Qn	nth quartile
R&D	Research and development
RMI	Products derived directly from raw material
SES	Structure of Earnings Survey
SILC	Statistics on Income and Living Conditions
SITC	Standard International Trade Classification
SMEs	Small and medium-sized enterprises
UNCTAD	United Nations Conference on Trade and Development
VAT	Value added tax
WDN	Wage Dynamics Network

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