

SHORT TERM UPDATE

3-14

Quarterly Newsletter
October 2014

Headlines Belgian Economy

Special Topic in this issue

Belgium's performance
in terms of security of
energy supply: trends to 2050

Quarterly Newsletter of the Federal Planning Bureau

Short Term Update (STU) is the quarterly newsletter of the Belgian Federal Planning Bureau. It contains the main conclusions from the publications of the FPB, as well as information on new publications, together with an analysis of the most recent economic indicators.

HEADLINES BELGIAN ECONOMY

The economic recovery in the euro area is proving to be challenging. Because of a disappointing first semester, economic growth should amount to only 0.8% in 2014. Driven by a strengthening of world trade, a loose monetary policy and a gradual pick-up in domestic demand, GDP growth in the euro area ought to rise by 1.3% in 2015. The international context remains surrounded by major uncertainties. Inflation in the euro area is currently very low and a new negative demand shock could tilt the euro area into deflation. Furthermore, a resurfacing of the euro crisis or an escalation of the conflict in Ukraine are likely to weigh down on consumer and producer confidence.

The recovery of the Belgian economy faltered in 2014Q2 (0.1%), which was partially due to a temporary slide in activity in the building sector, which performed exceptionally well in 2014Q1 because of the mild winter. Belgian GDP growth should strengthen from the second half of this year onwards owing to the (moderate) recovery of the European economy and a further expansion in domestic demand. On an annual basis, GDP growth should amount to 1.1% in 2014 and 1.5% in 2015.

The improvement in the business cycle in the course of 2014 and 2015 should lead to a net increase in the number of jobs. This increase should, however, remain limited to 9 400 units (0.2%) and 27 400 (0.6%) respectively, due to the catching-up of both labour productivity and average working time. The number of unemployed persons (broad administrative definition) should increase by 2 400 units this year, but go down by 8 300 units next year. The harmonised Eurostat unemployment rate for Belgium should decline from 8.5% in 2014 to 8.3% in 2015.

Belgian inflation, as measured by the yoy growth rate of the national index of consumer prices (NICP), should cool down to 0.6% in 2014 due to lower energy prices. In 2015, underlying inflation ought to stabilise on an annual basis, while prices of petroleum products in euro should increase slightly due to the depreciation of the euro. Therefore, the NICP should rise by 1.3% next year.

It should be noted that measures announced by the new regional governments in Belgium were not taken into account in our September forecast as they have not yet been formally adopted.

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FPB activities are primarily focused on macroeconomic forecasting, analysing and assessing policies in the economic, social and environmental fields.



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Belgium's performance in terms of security of energy supply: trends to 2050

Energy holds an important place in our economies. It is a production factor for the manufacturing industry as well as a key element in our everyday life. It is essential to evaluate a country's energy dependence and its potential vulnerability to energy supply disruptions or energy price shocks because this may translate into losses in competitiveness and growth. For a country like Belgium, this type of evaluation is even more crucial because the Belgian ground does not contain any indigenous fossil fuel resource, the potential of renewable energy sources is relatively limited and nuclear energy is being phased out. In order to assess Member States' energy dependence, the European Commission¹ designed a set of energy dependence indicators and looked at their evolution over recent years. Looking at the past is relevant and interesting but appraising future trends brings an extra dimension to the issue. This is all the more so since the EU has set ambitious energy and climate policies, which call for significant structural changes in the energy system. The recent FPB publication *Belgium Energy Trends to 2050*² provides the material to compare and gauge past and future trends of some energy dependence indicators. The results of this side analysis are summarised below.

Energy Dependence Indicators

The European Commission identifies three dimensions of energy dependence: (1) security of energy supply, (2) energy and carbon intensity and (3) contribution of energy products to trade. The first dimension encompasses the dependency on energy imports, the diversification of import sources (and routes) and the composition of the energy mix. The idea behind this set of three indicators is that a diversified energy mix and diversified origins of energy imports can compensate for a country's high dependence on imported energy sources and consequently reduce its energy dependence. The second pillar of energy dependence assesses the performance of a country in terms of energy intensity and carbon intensity. The rationale here is that the higher the energy intensity of the economy, the more vulnerable a country is to energy price spikes, and the higher the carbon intensity of the energy sector, the more vulnerable a country is to more stringent climate change policies. The third and last dimension relates to the potential conse-

quences for current account imbalances of energy trade deficits (or surpluses).

Belgium's Energy Trends to 2050

The Federal Planning Bureau recently published a report describing energy and greenhouse gas emission projections for Belgium under a reference scenario. The time horizon of these projections is 2050. The reference scenario simulates the development of the Belgian energy system under current trends and adopted policies but assumes also that the legally binding greenhouse gas and renewables targets for 2020 will be achieved. The numerous figures provided in this report allow extending the timeframe of the EC's analysis of Belgium's energy dependence to the period 2010 to 2050. However, this extension is not possible for all dimensions of energy dependence or for all indicators. For instance, the FPB study does not deal with the countries of origin of the imported fuels or with the future development of current account imbalances.

Belgium's Security of Energy Supply

Among all the indicators identified by the European Commission as relevant for assessing energy dependence, the present analysis will focus on those related to the security of energy supply. More specifically, three indicators will be scrutinised. The first indicator is (primary) energy³ import dependency, i.e. the extent to which Belgium depends on imports to meet its energy needs. It is calculated as the ratio between total net energy imports and total energy needs (i.e. gross inland consumption + consumption of international bunker fuels).

The second indicator is electricity import dependency. It is defined as the ratio between net electricity imports and final electricity demand. The third indicator measures the degree of diversification of energy sources. To measure this diversity, a Herfindahl index is used. The lower the index, the more diversified the energy mix: a score of 1 means that the country relies on a single energy source.

The analysis covers the period 1990-2050 and results are provided in the table below in steps of 10 years. The evolution between 1990 and 2010 is based on observations, while figures beyond 2010 come from the reference scenario described in the FPB report.

1. European Commission (DG ECFIN), *Member States' Energy Dependence: An Indicator-Based Assessment*, European Economy, Occasional Papers 145 (April 2013) and 196 (June 2014).
2. D. Devogelaer and D. Gusbin, *Het Belgische energiesysteem in 2050: Waar naartoe? Beschrijving van een Referentiescenario voor België; Le paysage énergétique belge: perspectives et défis à l'horizon 2050. Description d'un scénario de référence pour la Belgique*, Federal Planning Bureau, October 2014.

3. Primary energy covers oil (crude oil, feedstock and petroleum products), natural gas, solid fuels and biomass (both solid and liquid).

Table 1 - Indicators assessing Belgium's performance in terms of security of energy supply

	1990	2000	2010	2020	2030	2040	2050
Energy imports (%)	75	78	78	75	88	87	85
Electricity imports (%)	-6	6	1	4	24	20	20
Index energy mix	0.27	0.28	0.29	0.28	0.36	0.36	0.36

Source: Eurostat, FPB (2014), FPB calculation

Belgium imported 78% of its energy needs in 2010. According to DG ECFIN's analysis, Belgium's import dependence is far above the EU average of 53%. However, this high level of dependence is mitigated by the country's well-diversified origins of energy imports, well-connected gas networks with neighbouring countries and the Zeebrugge LNG terminal on the one hand, and by the country's well-diversified energy mix (see infra) on the other hand. Belgium's high dependence on energy imports comes from the fact that the country has no indigenous fossil fuel resource, i.e. Belgium imports 100% of its oil, natural gas and solid fuel needs and fossil fuels account for no less than three quarters of the country's total energy consumption.

Between 1990 and 2020, energy import dependence is roughly stable (it fluctuates between 75 and 78%). A significant increase can then be observed up to 2030, when it reaches 88%, followed by a slight but steady decrease in the last two decades (it equals 85% in 2050). The spike in 2030 reflects the full achievement of the nuclear phase-out decided by law (all nuclear reactors must be closed by 2025): nuclear heat reported in the gross inland consumption is, by (statistical) convention, a domestic resource, which would gradually be partly replaced by imported natural gas for power generation. The declining trend between 2030 and 2050 is mainly due to the development of domestic renewable energy sources.

Since 1992, Belgium has been a net importer of electricity (2009 constitutes the only exception to the rule). Net electricity imports represented 1% of total final electricity consumption in 2010. Strong fluctuations are observed for the period 1992-2012 but Belgium's import dependence always remained below 13%. The largest electricity trade partner is France, but electricity flows with the Netherlands also sometimes recorded rather high levels. Looking forward, still moderate levels of electricity import dependence are expected until 2020. However, afterwards, Belgium should import a greater share of its electricity needs (from 24% in 2030 to 20% in 2050). This evolution again reflects the phase-out of nuclear energy as well as the move towards a stronger integration of the electricity market within the EU, in terms of both market functioning and cross-border interconnections and the fact that variable renewables (i.e. wind and solar) should enter into the system.

Belgium has a rather well-balanced energy mix. The index for the energy mix progressively increased between 1990 and 2010 (from 0.27 to 0.29) but it remains within the range of the EU average of 0.24. Compared to the EU, Belgium has higher shares of oil, gas and nuclear but lower shares of solid fuels and renewables. The decision to close the nuclear power plants as well as the implicit ban on investments in new coal power plants will have major implications for the degree of diversification of energy sources. The index will deteriorate considerably from 2025 onwards: it will reach a value of 0.36 over the period 2030-2050. Despite this unfavourable trend, the diversification of the energy mix should remain better than in other Member States (e.g. Luxembourg, the Netherlands) due to the dramatic increase in the share of renewables (from 5% in 2010 to 15% in 2030 and 17% in 2050), which partly compensates the zero share of nuclear and the drop in the share of solid fuels.

In the calculation of the index described above (and presented in the table), renewables are considered to represent one single energy source. Yet renewables encompass a wide range of different energy sources: hydro, wind, solar, biomass and geothermal. Diversification within the renewables category should also be reflected in the index for the energy mix. Therefore, an alternative index can be calculated which accounts for this observation. The new figures do not change the overall picture, namely the evolution towards a less diversified energy mix, but the impact is softened. The index decreases from 0.36 in the first calculation to 0.35 in 2020 and from 0.36 to 0.33 in 2050.

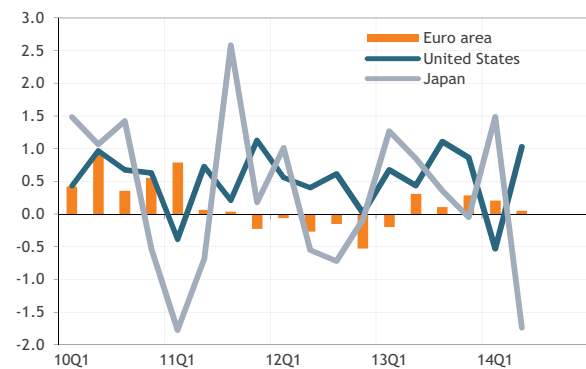
Conclusion

The analysis of the evolution of a set of energy dependence indicators over the period 1990-2050 shows a deterioration in Belgium's performance in terms of security of energy supply from 2020 onwards. By then, Belgium should not only present a much higher dependence on imported fuels and electricity but also a less diversified energy mix. The main explanatory factors are the planned nuclear phase-out, the implicit ban on coal for power generation and the relatively low potential of (domestic) renewable energy sources. Belgium will therefore be potentially more vulnerable to energy price and/or supply shocks than today. However, other important issues are outside the scope of this indicator analysis even though they also contribute to the security of energy supply. They include, for instance, a geographically diversified portfolio of energy suppliers, the level of integration within the EU gas and electricity markets and the development of interconnections for electricity trade.

Tough economic recovery in the euro area

After a relatively weak first semester, world economic growth should gain strength in the second half of 2014 and in 2015. This upturn is mainly fuelled by the US economy, growing by 2.2% in 2014 and by 3.1% in 2015. The economic recovery in the euro area, however, should prove to be challenging. Because of a disappointing first semester, economic growth should amount to only 0.8% in 2014. Driven by a strengthening of world trade, a loose monetary policy and a gradual pick-up in domestic demand, GDP growth in the euro area ought to rise by 1.3% in 2015. However, euro area GDP growth is expected to be dampened because of the trade conflict with Russia and, more importantly, because of the high debt levels, scarce credit and high unemployment still witnessed in several Member States.

Graph 1 - GDP growth (qoq growth rates in %)



Source: Eurostat, national sources

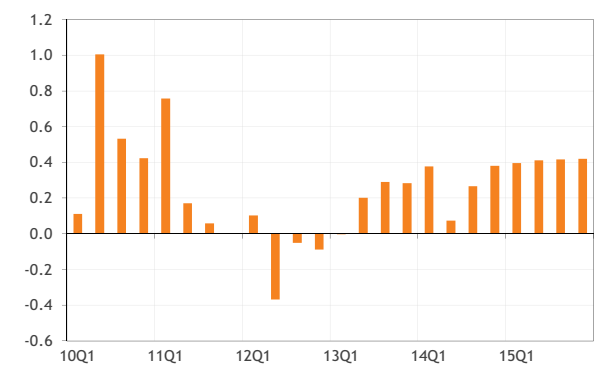
The above-described scenario involves several risks. Inflation in the euro area is currently very low and a new negative demand shock could tilt the euro area into deflation. Furthermore, a resurfacing of the euro crisis or an escalation of the conflict in Ukraine are likely to weigh down on consumer and producer confidence. Finally, a normalisation of US monetary policy could result in a worldwide surge in long-term interest rates.

Net exports and domestic demand should both contribute positively to Belgian GDP growth

After several quarters of negative growth, the Belgian economy started to recover in 2013Q2. GDP growth accelerated gradually to 0.4% in 2014Q1 owing to a positive contribution of both net exports and domestic demand. The recovery of the Belgian economy faltered in 2014Q2 (0.1%), which was partially due to a temporary slide of activity in the building sector, which performed exceptionally well in 2014Q1 because of the mild winter. Belgian GDP growth should strengthen from the second

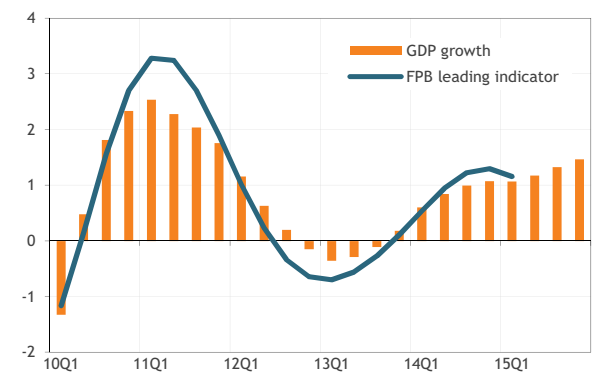
half of this year onwards owing to the (moderate) recovery of the European economy and a further expansion in domestic demand. On an annual basis, this should result in growth rates of 1.1% in 2014 and 1.5% in 2015.

Graph 2 - Quarterly Belgian GDP growth (qoq growth rates, corrected for seasonal and calendar effects)



Source: INR/ICN, FPB

Graph 3 - Quarterly GDP growth (YoY growth rates) 4-quarter moving averages

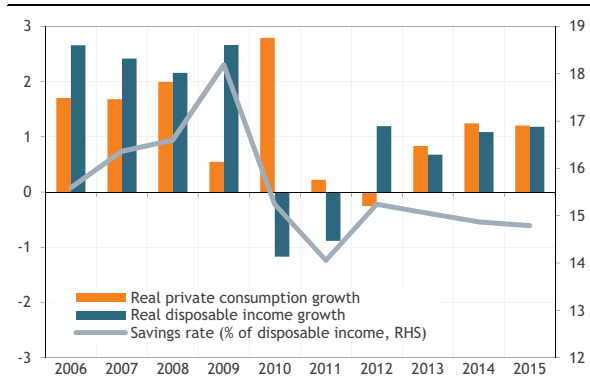


Source: INR/ICN, FPB

Although Belgian exports are expected to continue to experience market share losses, they should benefit from the gradual global economic upturn and grow by 2.3% in 2014 and 3.2% in 2015. Net exports should contribute positively to economic growth (0.3 %-points in both years) leading to a reduction in the current account deficit (balance of payments definition).

The gradual improvement in the labour market performance should result in a small decline in the household saving rate as compared to last year. Private consumption should hence increase by 1.2% in both 2014 and 2015, in line with the evolution of households' real disposable income. The increase in purchasing power and low mortgage rates should allow a further (modest) recovery in housing investment. After a decrease for several years, housing investment should hence grow by 0.8% this year and by 1.4% next year.

Graph 4 - Private consumption, disposable income and savings rate



Source: INR/ICN, FPB

Following a limited decline last year, business investment should accelerate in 2014 and 2015, as both domestic and foreign demand prospects are improving. Support is furthermore provided by the increase in corporate profitability, the recent easing of credit conditions and the increased need for investment in expansion (the industrial capacity utilisation rate has hovered just above its historical average since the start of the year). Business investment growth (5.4% in 2014 and 1.5% in 2015) has been distorted by a large purchase (abroad) of vessels by a maritime company in 2014. Disregarding this purchase, which increases imports to the same extent and has no effect on GDP, business investment should rise by 3.7% and 3% respectively.

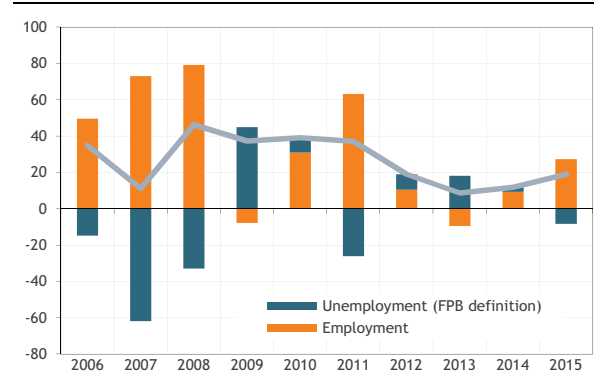
Taking into account all known measures, the annual volume growth in public consumption should amount to 1.2% in 2014 and 0.7% in 2015. The growth profile of public investment is largely determined by the cycle of local authorities' infrastructure projects. Having increased by almost 11% over the period 2013-2014, public investment should expand by 3.7% in 2015. It should be noted that measures announced by the new regional governments were not taken into account as they have not yet been formally adopted.

Slight decrease in unemployment in 2015

In 2013, domestic employment decreased by 9 700 units on an annual basis. The improvement in the business cycle in the course of 2014 and 2015 should lead to a net increase in the number of jobs. This increase should, however, remain limited to 9 400 units (0.2%) and 27 400 (0.6%) respectively, due to the catching-up of both labour productivity and average working time. Both factors decreased during the period of weak economic activity and thus limited the number of job losses. Considering the evolution of the labour force, the number of unemployed persons (broad administrative definition) should increase by 2 400 units this year, but go down by 8 300 units next year. The harmonised Eurostat unemployment rate for Belgium should decline

from 8.5% in 2014 to 8.3% in 2015.

Graph 5 - Evolution of employment and unemployment (changes in thousands)

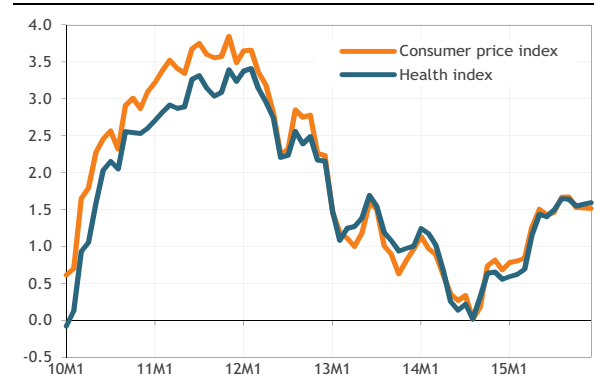


Source: INR/ICN, RVA/ONEM, FPB

Inflation remains persistently low

Belgian headline inflation, which is measured as the yoy growth rate of the national index of consumer prices (NCIP), dropped to 1.1% in 2013 and should cool down further to 0.6% in 2014 due to lower energy prices. These result from both lower price quotations in international (futures) markets and increased competition in the domestic gas and electricity market. Moreover, the VAT rate on electricity for domestic use has been lowered as from April 2014. In 2015, underlying inflation ought to stabilise on an annual basis, while prices of petroleum products in euro should increase slightly due to the depreciation of the euro. Therefore the NCIP should rise by 1.3% in 2015.

Graph 6 - Monthly evolution of inflation (qoq growth rates, in %)



Source: INR/ICN, FPB

The increase in the health index, which is not affected by price developments in alcoholic beverages, tobacco products, petrol and diesel, should likewise increase by 0.6% and 1.3% respectively. The current pivotal index for public wages and social benefits (standing at 101.02) should next be crossed in February 2015.

“Economische begroting 2014-2015 / Budget économique 2014-2015”, INR/ICN, September 2014.

Summary of economic forecasts

Economic forecasts for Belgium by the Federal Planning Bureau

Changes in volume (unless otherwise specified) (publication date: 11 September 2014)

	2012	2013	2014	2015
Private consumption	-0.3	0.8	1.2	1.2
Public consumption	1.4	0.6	1.2	0.7
Gross fixed capital formation	-2.0	-1.5	3.3	1.7
Final national demand	-0.6	-0.3	0.8	1.1
Exports of goods and services	1.8	1.9	2.3	3.2
Imports of goods and services	1.3	1.3	2.0	2.9
Net-exports (contribution to growth)	0.4	0.5	0.3	0.3
Gross domestic product	-0.1	0.2	1.1	1.5
p.m. Gross domestic product - in current prices (bn euro)	375.88	382.69	390.28	401.61
National consumer price index	2.8	1.1	0.6	1.3
Consumer prices: health index	2.6	1.2	0.6	1.3
Real disposable income households	1.2	0.7	1.1	1.2
Household savings ratio (as % of disposable income)	15.2	15.1	14.9	14.8
Domestic employment (change in '000, yearly average)	9.4	-9.7	9.4	27.4
Unemployment (Eurostat standardised rate, yearly average)	7.6	8.4	8.5	8.3
Current account balance (BoP definition, as % of GDP)	-1.9	-1.9	-1.4	-1.2
Short term interbank interest rate (3 m.)	0.6	0.2	0.2	0.1
Long term interest rate (10 y.)	3.0	2.4	1.8	1.5

Economic forecasts for Belgium by different institutes

	GDP growth		Inflation		Government balance		Date of update
	2014	2015	2014	2015	2014	2015	
Federal Planning Bureau	1.1	1.5	0.6	1.3	.	.	09/14
INR/ICN	1.1	1.5	0.6	1.3	.	.	09/14
National Bank of Belgium	1.3	1.6	0.9	1.3	-2.6	-2.8	06/14
European Commission	1.4	1.6	0.9	1.3	-2.6	-2.8	05/14
OECD	1.5	1.9	0.8	1.0	-2.1	-1.2	05/14
IMF	1.0	1.4	0.7	1.0	-2.6	-2.2	10/14
ING	1.1	1.5	0.5	0.9	-2.4	-1.8	09/14
BNP Paribas Fortis	0.9	0.9	0.7	1.1	-2.7	-2.1	09/14
Belfius	1.4	1.7	0.9	1.3	-2.2	-1.5	06/14
KBC	1.1	1.4	0.6	1.2	-3.0	-3.1	09/14
Deutsche Bank	1.0	1.0	0.7	1.3	-2.5	-2.3	09/14
Oxford Economics	1.1	1.4	0.6	1.4	-2.5	-2.5	09/14
IRES	1.5	2.0	0.6	1.3	-2.3	-2.4	07/14
Belgian Prime News	1.1	1.5	0.8	1.2	-2.5	-2.3	09/14
Consensus Economics	1.1	1.4	0.8	1.4	.	.	09/14
Consensus The Economist	1.2	1.4	0.9	1.4	.	.	09/14
Consensus Wirtschaftsinstitute	1.4	1.7	1.2	1.4	-2.6	-2.5	04/14
Averages							
All institutions	1.2	1.5	0.8	1.2	-2.5	-2.3	
International public institutions	1.3	1.5	0.8	1.1	-2.4	-2.1	
Credit institutions	1.1	1.3	0.7	1.2	-2.6	-2.2	

Transport Indicators

As part of its collaboration with the Federal Public Service Transport and Mobility, the Federal Planning Bureau develops and maintains a transport database. In this section, the evolution of the indicators for Belgium from 2000 to 2012 are compared to the European aggregates. The indicators presented cover a wide range of subjects, with varying scope.

Transport industry and household expenditure indicators are both based on the National Accounts, which apply to resident companies and households.

The crisis hit the Belgian and EU27 transport industry harder than the rest of the economy. Even so, in terms of value added, the Belgian transport industry already recorded pre-crisis levels in 2011, while the EU27 transport industry was still below its pre-crisis levels in 2012. Employment in the transport industry continued to decline, in the EU27 more than in Belgium.

Decreasing car sales pushed down Belgian transport-related expenditure for the second consecutive year, while

household expenditure statistics showed a decline for the fifth consecutive year in the EU28. In 2012, Belgian transport-related expenditure was still above and EU28 transport-related expenditure below their 2000 levels.

The transport indicators show the evolution of passenger and freight transport within the Belgian and EU28 territories between 2000 and 2012. While Belgian passenger transport continued to increase, EU28 passenger transport declined from 2008. Belgian freight transport growth outpaced GDP growth over the 2009-2012 period. Freight transport is still below its pre-crisis level in Belgium and the EU28.

The energy and emission indicators are also based on the territory principle. The first are based on consumption within the territory, the second on transport emissions within the territory of the reporting country. In 2012, GHG emissions decreased more for transport than for the total economy. Nevertheless, the size of transport in total GHG emissions increased between 2000 and 2012, for both Belgium and the EU28.

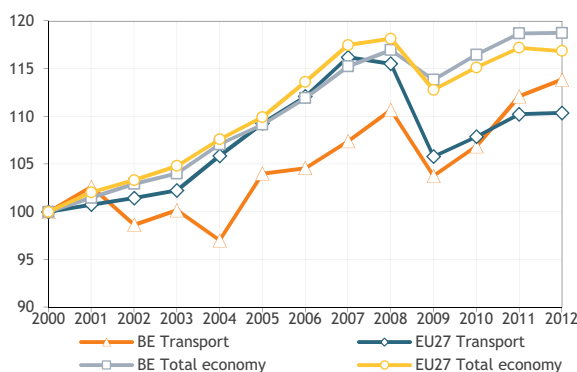
Transport industry indicators

Graph 1 - Relative importance of the transport industry (% share of value added and employment of the total economy)



Sources: Eurostat (Economy and finance database) and FPB (Transport database)
 N.B. For Belgium (BE), figures relate to 2012; for the EU27, to 2011. Belgian figures are from the 2013 national accounts, compiled on an ESA2010 basis, EU27 figures are from the 2012 exercise, compiled on an ESA95 basis.

Graph 2 - Gross value added of the transport industry (chained euros, index 2000 = 100)

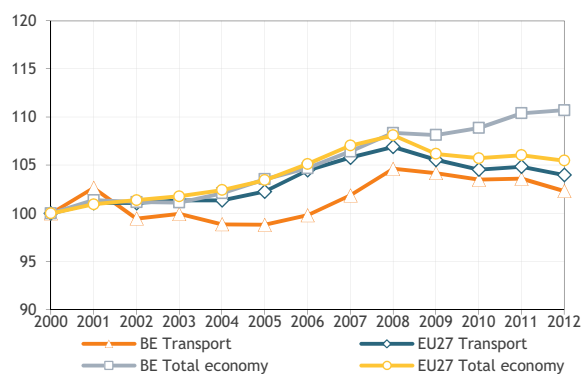


Sources: Eurostat (Economy and finance database) and FPB (Transport database)
 N.B. EU27 Transport includes postal and courier activities. Belgian figures are from the 2013 national accounts, compiled on an ESA2010 basis, EU27 figures are from the 2012 exercise, compiled on an ESA95 basis.

The transport industry comprises companies having transport as their principal activity and covers four branches: land, water and air transport on the one hand and support activities for transport on the other. Graph 1 shows that in 2012, Belgium's transport industry accounted for 5.0% of GDP, compared to 4.4% in 2011 for the EU27. Belgium's location close to the Western European consumer market makes it attractive for establishing support activities for transport. Support activities for transport are the main transport branch in Belgium, with a share of GDP of 2.8%. At the EU27 level, land transport is the largest transport branch, with a share of 2.4% of GDP in 2011, compared to 1.9% for Belgium.

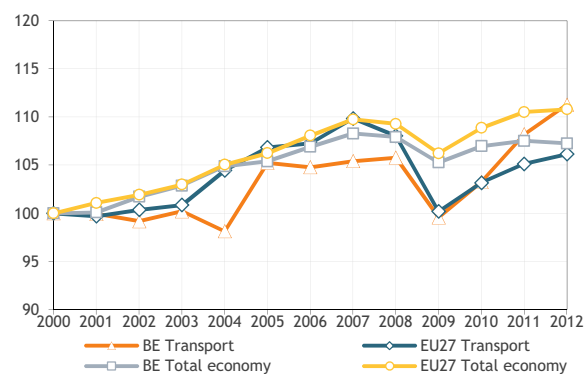
Real gross value added growth for the Belgian transport industry (+13.9%) was smaller than GDP growth (+18.8%) between 2000 and 2012 (Graph 2). Mainly during the 2000-2004 period, value added by the transport industry lagged behind GDP growth. In 2009, the crisis hit the industry hard. However, over 2009-2012, the transport industry recorded growth rates that surpassed the GDP growth rate. In terms of gross value added, the EU27 transport industry grew by 4.3%, compared to 3.6% for GDP. In Belgium, transport growth was driven by land transport and support activities, and the difference was even bigger: 9.7% compared to 4.3%. The EU27 transport industry was hit harder by the crisis and recovered less than the Belgian transport industry. In 2011, value added was still lower than its pre-crisis level.

Graph 3 - Employment in the transport industry (thousand persons, index 2000 = 100)



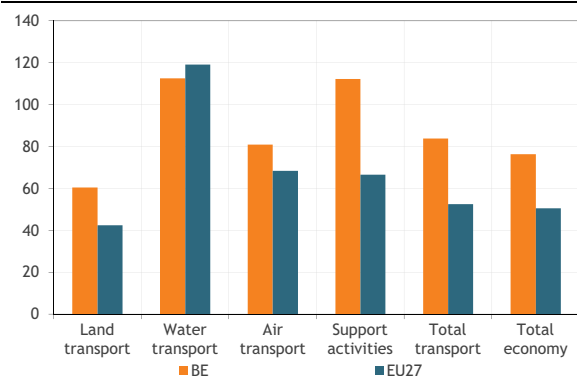
Sources: Eurostat (Economy and finance database) and FPB (Transport database)
 N.B. Belgian figures are from the 2013 national accounts, compiled on an ESA2010 basis, EU27 figures are from the 2012 exercise, compiled on an ESA95 basis.

Graph 4 - Labour productivity (chained euros per person employed, index 2000 = 100)



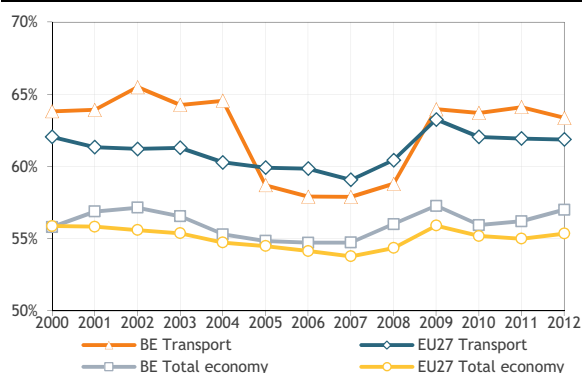
Sources: Eurostat (Economy and finance database) and FPB (Transport database)
 N.B. EU27 Transport includes postal and courier activities. Belgian figures are from the 2013 national accounts, compiled on an ESA2010 basis, EU27 figures are from the 2012 exercise, compiled on an ESA95 basis.

Graph 5 - Sectoral breakdown of labour productivity (thousands of euros per person employed)



Sources: Eurostat (Economy and finance database) and FPB (Transport database)
 N.B. For Belgium (BE), figures relate to 2011; for the EU27, to 2010. Belgian figures are from the 2013 national accounts, compiled on an ESA2010 basis, EU27 figures are from the 2012 exercise, compiled on an ESA95 basis.

Graph 6 - Wage share (% of gross value added)



Sources: Eurostat (Economy and finance database) and FPB (Transport database)
 N.B. EU27 Transport includes postal and courier activities. Belgian figures are from the 2013 national accounts, compiled on an ESA2010 basis, EU27 figures are from the 2012 exercise, compiled on an ESA95 basis.

Like gross value added, the share of transport employment in total employment (4.6% in 2012) was higher for Belgium than the EU27 average (4.2%) (Graph 1). As in the EU27, the land transport branch was the transport industry's largest employer. Its share in total Belgian employment (2.4%) was slightly lower than the EU27 average (2.7%). As was the case for value added, Belgian support activities (1.9%) accounted for a higher share of total employment than those of the EU27 overall (1.2%).

Graph 3 shows that both Belgian and European employment in the transport industry increased at a lower rate than value added over the period 2000-2012. The Belgian transport industry suffered more from the crisis than the total economy, while the EU27 transport industry and total economy evolved in line. Due to anti-crisis measures, the crisis had little impact on Belgian employment (+2.2%), in particular in the transport industry (-2.4%). In the EU27, the impact on employment amounted to -2.7% for the transport industry and -2.4% for the total economy. Divergence between employment and value added growth was highest for the Belgian transport industry, implying higher productivity growth in Belgium than in the EU27 (Graph 4). Contrary to the EU27, the Belgian transport industry showed higher labour productivity growth than the rest of the economy. While in 2012 labour productivity in the Belgian transport industry was higher than its pre-crisis level, this was not the case for the EU27.

The fact that the transport industry accounts for a larger share of value added than of employment indicates that the labour productivity level is higher in the transport industry than in the total economy. Belgian productivity in the transport industry in 2012 was 10% higher than for the total economy (Graph 5). In the EU27, the difference was 4%.

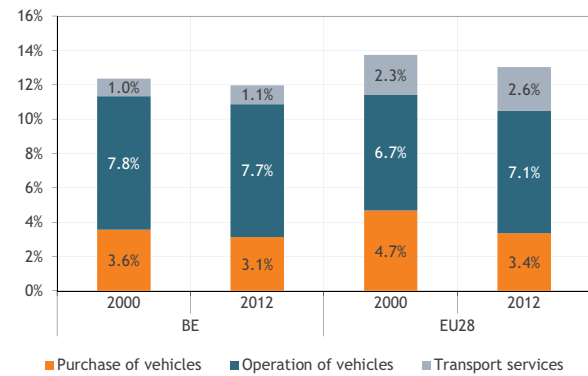
Belgian and, to a larger extent, the Belgian transport industry's labour productivity were higher than the European average (respectively, 51% and 60% higher). Only for water transport was Belgian labour productivity lower than the European average (6%). For the other branches, the differences in labour productivity ranged from 18% for air transport to 69% for support activities.

In both Belgium and the EU27, water transport recorded the highest labour productivity among the four branches. The difference with Belgian support activities' labour productivity is small, though. Labour productivity was lowest in land transport.

From 2009, Belgian wages in the transport industry, examined as a proportion of value added – the so-called wage share (Graph 6) – were slightly higher than in the EU27. In 2012, the Belgian transport industry's wage share amounted to 63%, compared to 62% for the EU27. The transport industry's wage share was higher than that of the total economy.

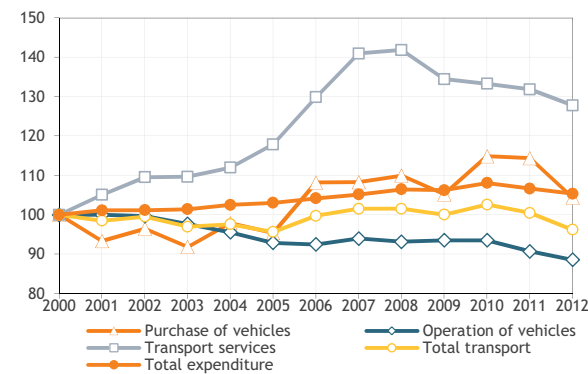
Household expenditure

Graph 7 - Relative size of household expenditure on transport (% share of total household expenditure, current prices)



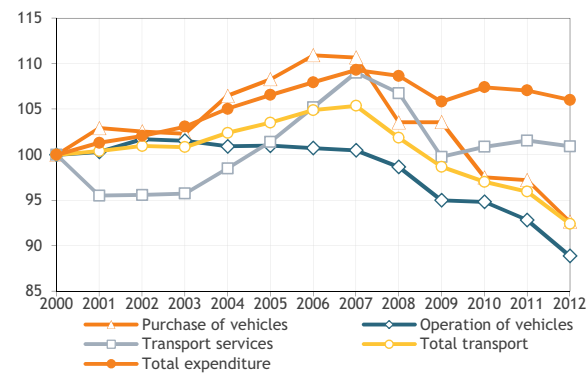
Sources: Eurostat (Economy and finance database) and FPB (Transport database)

Graph 8 - Household expenditure on transport per capita - Belgium (chained euros, index 2000 = 100)



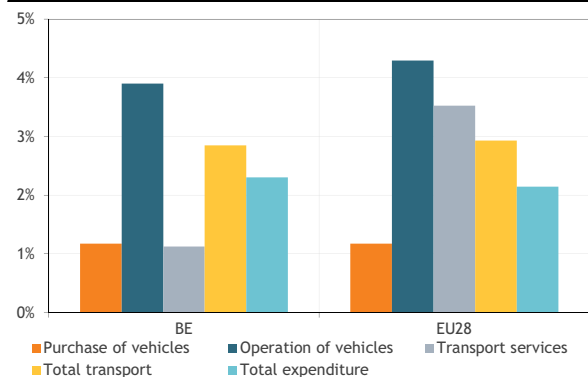
Source: FPB (Transport database)

Graph 9 - Household expenditure on transport per capita - EU28 (chained euros, index 2000 = 100)



Source: Eurostat (Economy and finance database)

Graph 10 - Average annual growth in consumer prices for transport (2000-2012) (%)



Sources: Eurostat (Economy and finance database) and FPB (Transport database)

Household expenditure for transport covers three products: the purchase of vehicles, the operation of vehicles and transport services. Between 2000 and 2012, the share of Belgian transport expenses in total household expenditure declined by 0.4 %-points to reach 12.0% in 2012. For the EU28, a decline by 0.7 %-points is noted. The EU28's transport expenses constituted 13.0% of 2012 total household expenditure.

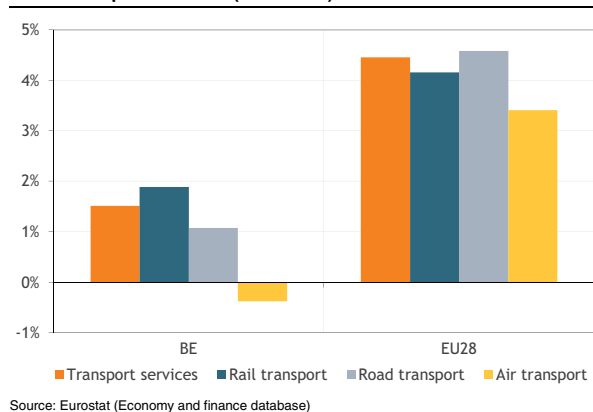
As Graphs 8 and 9 show, real transport expenditure recorded negative growth, while total real expenditure increased. Belgian and EU28 transport expenditure dropped by 3.8% and 7.6% respectively between 2000 and 2012. Over the same period, consumer prices for transport grew at higher rates than average expenditure prices. Belgian transport prices rose by 2.8% on average annually, compared to 2.9% for the EU28 (Graph 10).

A shift between transport products is observed. In the EU28, the share of **vehicle purchases** receded significantly by 1.3 %-points and by 0.5 %-points in Belgium. In 2012, the purchase of vehicles accounted for 3.1% and 3.4% of total expenditure in Belgium and the EU28, respectively. In 2012, Graph 10 shows that for both Belgium and the EU28, vehicle prices increased at a lower rate than average expenditure prices. Both Belgium and the EU28 recorded an annual growth rate of 1.2%. In contrast, Belgian vehicle purchases dropped below their pre-crisis level for 2008. EU28 purchases continued to drop from 2007 until 2012. Belgian vehicle purchases increased by 4.4% between 2000 and 2012, compared to a 7.3% decrease for European purchases.

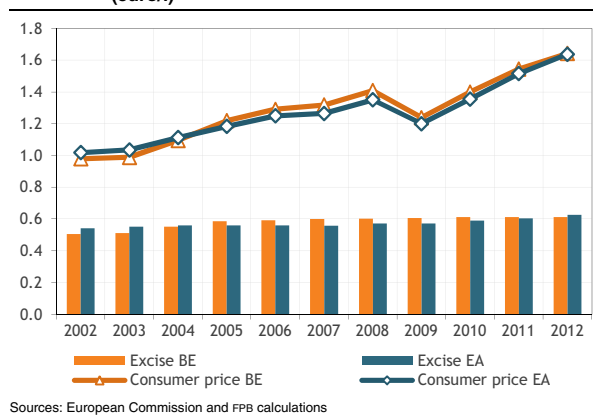
Transport services cover passenger transport by railway, road, air, sea and inland waterways and combined passenger transport, with the first three modes constituting the main products. Transport services constituted the smallest part of transport expenditure. For Belgium (1.1% of total 2012 expenditure), its share was considerably lower than in the EU28 (2.6%), but this slightly increased (+0.1 %-points). This increase was due to the combined effect of increasing expenditure for transport services (+28%) and an average growth in prices (+1.1%) that was, however, considerably below the growth in average expenditure prices. For the EU28, the share of transport services grew by 0.3 %-points. This growth can be attributed to rising prices (+3.5% per year).

Transport services price growth was considerably lower in Belgium than in the EU28. Graph 11 shows contrasting price evolutions for Belgian rail, road and air transport. Rail transport recorded the highest growth rate (+1.9% per year), compared to 1.1% for road transport. Air transport even showed a negative growth rate (-0.4%).

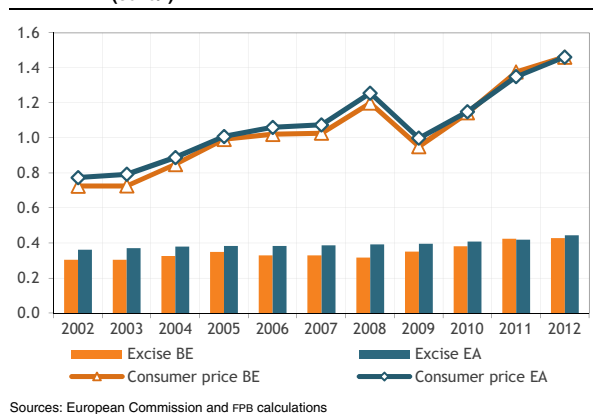
Graph 11 - Average annual growth in consumer prices for transport services (2000-2012)



Graph 12 - Petrol (RON 95) excise duties and consumer prices (euro/l)



Graph 13 - Diesel excise duties and consumer prices (euro/l)



In Europe, the difference between European price evolutions was less pronounced. The growth rates varied between 3.4% (air transport) and 4.6% (road transport), all higher than the HICP growth rate.

Operation of vehicles is the main transport product category, covering the purchase of spare parts, accessories, fuels and lubricants for personal transport equipment, as well as maintenance and repair. In 2012, its share of total expenditure amounted to 7.7% for Belgium and 7.1% for the EU28. A structural decline in expenditure for the operation of vehicles is observed. In Belgium, the decline between 2000 and 2012 amounted to 11.4% and to 11.1% in the EU28. Prices for the operation of vehicles tended to grow at a higher rate than total transport prices: in Belgium by 3.9% per year; in the EU28 by 4.3%. The combination of these two effects resulted in a slight decline in the share of 'Operation of vehicles' for Belgium and an increase for the EU28.

The main product within the category 'Operation of vehicles' is fuel. In 2002, Belgian fuel prices were below the average fuel prices for the euro area (EA). Between 2002 and 2012, Belgian petrol (Graph 12) prices recorded an annual growth rate of 5.3%, higher than the EA average of 4.9%. From 2005, Belgian petrol prices exceeded the EA average. In 2012, EA average petrol prices outpaced Belgian petrol price growth. In 2012, the Belgian petrol price (EUR 1.643/l) converged to the EA average of EUR 1.638/l.

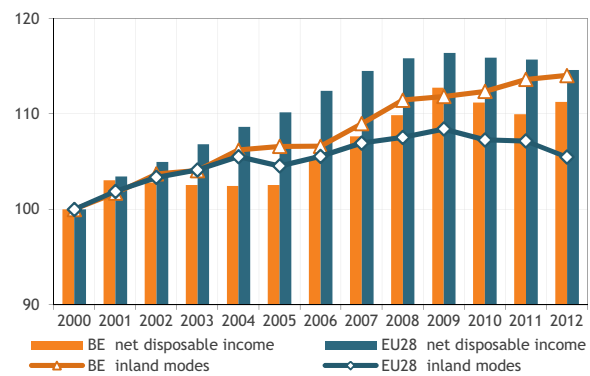
Diesel prices (Graph 13) grew at a higher rate. Recording a growth rate of 7.3% per year, Belgian diesel prices outpaced EA diesel prices (+6.6% per year). In 2012, Belgian and EA diesel prices amounted to EUR 1.462/l.

Belgian fuel prices grew at a higher rate than the average in the euro area due to the introduction of the 'positive cliquet' system in 2003 by the Belgian government. This system enabled the Belgian government to increase excises when maximum fuel prices fell due to decreasing international oil prices. One year later, the government presented the 'negative cliquet' system, compensating consumers with reduced excises should fuel prices rise. In 2004 and 2005, the positive cliquet system was applied several times for petrol. From 2005, Belgian petrol excises and consumer prices were higher than in the EA. In 2008, the negative cliquet system was applied for petrol.

Belgian diesel excises show fluctuating rates. This is due to the varying application of the positive and the negative cliquet systems: the positive in the period 2003-2005, the negative in the period 2005-2007, and finally the positive from 2009 on.

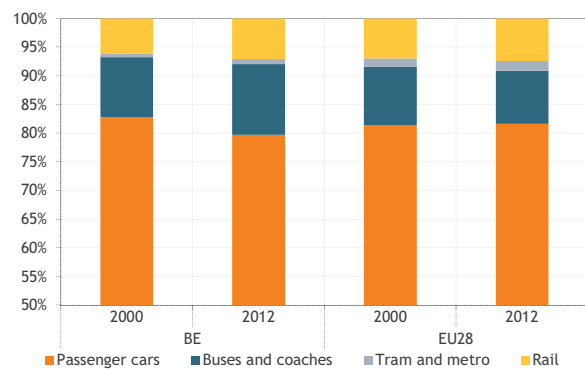
Passenger transport

Graph 14 - Passenger transport (passenger-km and real net disposable income, index 2000 = 100)



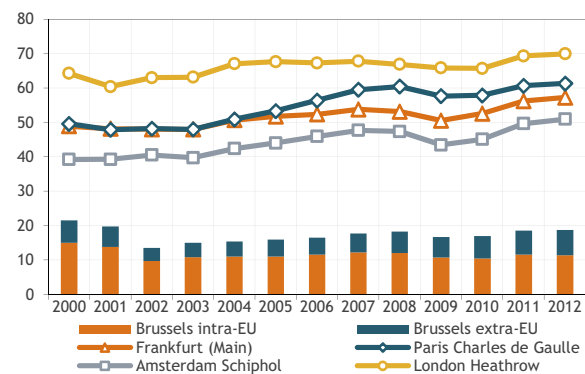
Sources: Eurostat (Economy and finance database) and European Commission

Graph 15 - Modal split for passenger transport (% of total transport in passenger-km)



Sources: European Commission

Graph 16 - Passenger air transport (million passengers)



Sources: Eurostat (Transport database) and European Commission

Graph 14 compares the evolution of passenger transport demand in terms of passenger-km for inland modes (passenger cars, buses and coaches, tram and metro and rail) with the evolution of real net disposable income.

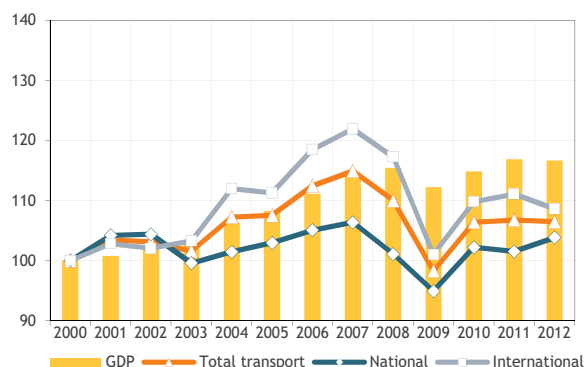
Belgian passenger transport evolved independently from net disposable income. While net disposable income decreased between 2009 and 2011, passenger transport continued to increase. Over the 2000-2012 period, passenger transport growth (14.0%) was higher than real net disposable income growth (11.3%). EU28 passenger transport was more sensitive to the evolution of net disposable income. The decrease in net disposable income from 2009 resulted in a decrease in passenger transport. Contrary to Belgium, EU28 real net disposable income growth was higher than that in passenger demand: 14.6% compared to 5.5%.

While the share of passenger cars in total passenger transport demand decreased in Belgium between 2000 and 2012, it remained constant in the EU28. In 2012, the share of passenger cars in Belgium amounted to 80%, compared to 82% in the EU28. Buses and coaches and, to a lesser extent, rail increased their shares in Belgian passenger transport demand. In 2012, their share amounted to 12% and 7% respectively. The share of buses and coaches was higher than the European average.

Graph 16 compares the evolution of Brussels airport with the evolution of the four largest European airports. At the beginning of the decade, the Belgian airport suffered from the consequences of the attacks of 9/11 on the one hand and the bankruptcy of Sabena on the other. Over a period of two years, the airport lost more than one third of its passengers. In 2012, activity at the airport attained its highest level since 2002, with 18.8 million passengers carried. This was still well below the 21.6 million passengers carried in 2000. Intra-EU travel remained the primary activity at Brussels airport. The share of extra-EU travel dropped significantly after the bankruptcy of Sabena. However, from then on, it grew continuously. All top four airports grew over the 2000-2012 period. Growth was smallest for Europe's largest airport (London Heathrow) due to saturation.

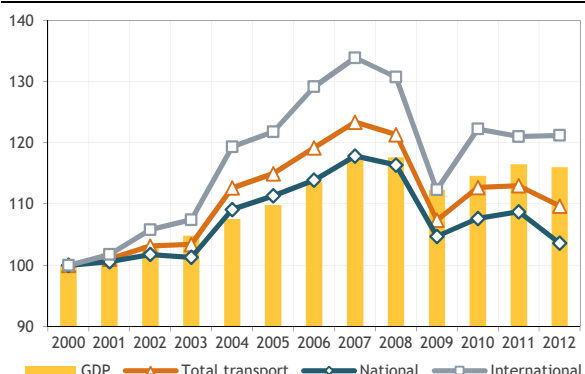
Freight transport

Graph 17 - Freight transport in Belgium
(tonne-km and GDP, index 2000 = 100)



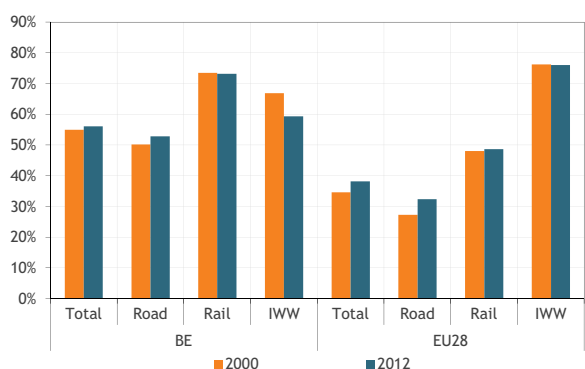
Sources: Eurostat (Transport database) and FPB (Transport database)
N.B. For road transport, the number of countries reporting international transport from and/or to Belgium evolves over time.

Graph 18 - Freight transport in the EU28
(tonne-km and GDP, index 2000 = 100)



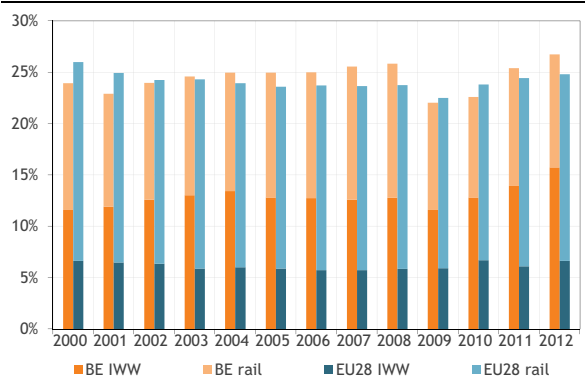
Sources: Eurostat (Transport database) and European Commission
N.B. Road transport figures relate to transport by EU28-registered vehicles.

Graph 19 - Relative size of international transport
(% of total transport in tonne-km)



Sources: Eurostat (Transport database); European Commission; FPB (Transport database)

Graph 20 - Share of inland waterways and rail in freight transport
(% of total transport in tonne-km)



Sources: Eurostat (Transport database); European Commission; FPB (Transport database)

Graphs 17 and 18 compare the evolution of GDP with the evolution of national and international (transport with its origin and/or destination abroad) freight transport demand in terms of tonne-km for heavy duty vehicles, inland waterways (IWW) and rail on Belgian and EU28 territory. Over the period 2000-2012, transport growth was lower than GDP growth, for both Belgium and the EU28. Freight transport in Belgium increased by 6%, compared to 10% for the EU28. Belgian transport growth was in line with GDP growth up to 2007, while EU28 transport growth outpaced GDP growth. In 2008 and 2009, the crisis hit freight transport hard. From 2009, freight transport recovered only partially. Contrary to the EU28, Belgian freight transport growth outpaced GDP growth over the 2009-2012 period. Still, freight transport is below its pre-crisis level.

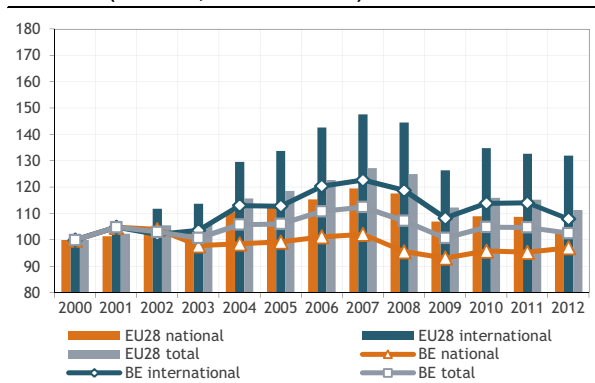
Between 2000 and 2012, international transport growth surpassed national transport growth. For the EU28, it even exceeded GDP growth. Over the period 2000-2012, national transport within the Belgian and the EU28 territory recorded 4% growth. EU28 international transport growth was significantly higher (+21%) than that within the Belgian territory (+9%).

International transport suffered most from the recession. In Belgium, national transport recovered better than international transport. In the EU28, the reverse was observed.

With a share of 55%, international freight transport was already predominant in Belgium in 2000, while the EU28 average amounted to 35%. Between 2000 and 2012, the share of international transport increased by 1 %-point, compared to 4 %-points for the EU28. For rail and road, the Belgian shares were higher than the European averages. Only for inland waterways was the Belgian share lower. The evolution of the share of international transport in freight transport is driven by road transport. Road transport recorded an increase of 3 and 5 %-points in Belgium and the EU28 respectively. For rail, the increase was limited for the EU28 (+1 %-point) and slightly negative for Belgium (-0.4%). Inland waterways recorded a substantial decrease in Belgium (-7 %-points) and a slight decline in the EU28 (-0.3 %-points).

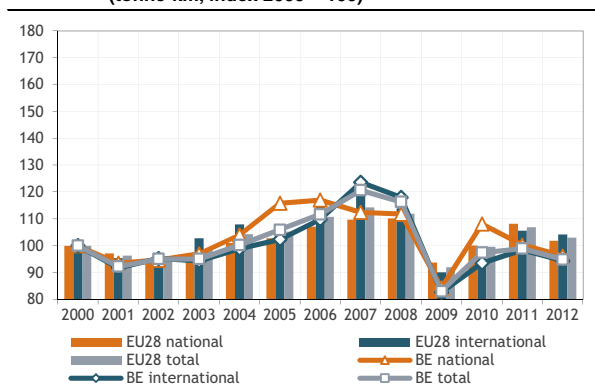
Road was the dominant freight transport mode, both in Belgium and the EU28, with a modal share of respectively 73% and 75% in 2012. Up to 2009, the share of Belgian and EU28 IWW and rail in total transport showed diverging evolutions. From 2010, the share of these modes entered into growth in both Belgium and the EU28. In Belgium, road transport is shifting towards inland waterways; in the EU28, towards rail. The Belgian share of IWW was higher than the European share; that of rail smaller.

Graph 21 - Road freight transport (tonne-km, index 2000 = 100)



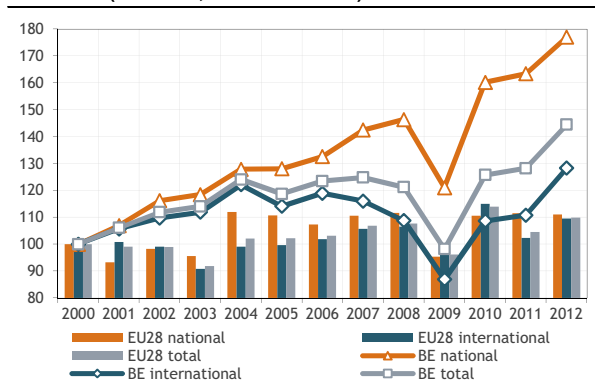
Sources: European Commission and FPS (Transport database)
 N.B. For Belgium, the number of countries reporting international transport from and/or to Belgium evolves over time.

Graph 22 - Rail freight transport (tonne-km, index 2000 = 100)



Source: Eurostat (Transport database)

Graph 23 - Inland waterways freight (tonne-km, index 2000 = 100)



Source: Eurostat (Transport database)

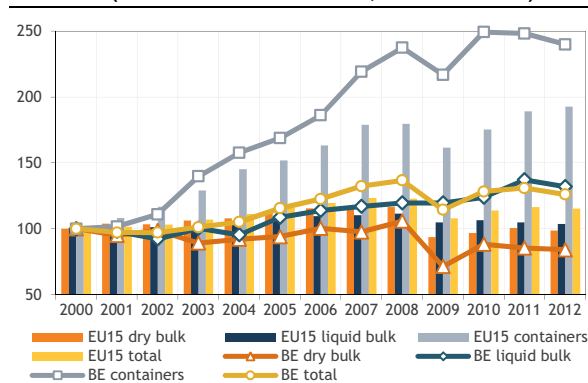
In 2010 and 2011, Belgian and European transport recovered partially from the recession. In 2012, transport activity was still below its pre-crisis level. Only Belgian inland waterways exceeded their pre-crisis level.

After 2009, road transport (Graph 21) recorded the lowest growth rate, in Belgium and the EU28, for both national and international transport. In 2012, EU28 road transport was at 88% of its pre-crisis level (2007), compared to 91% for road transport on the Belgian territory. In 2012, Belgian national and international road transport were at 95% and 88% of their pre-crisis levels. Over the 2000-2012 period, EU28 road transport (+11%) outpaced inland waterways and rail. In Belgium, road transport recorded 3% growth.

Rail transport (Graph 22) suffered most from the crisis. After 2009, rail transport growth outpaced the other modes, in Belgium and the EU28, for both national and international transport. In 2012, EU28 rail was at 90% of its pre-crisis level. Belgian rail dropped lower than European rail and in 2012 was at 79% of its pre-crisis level. As for road transport, recovery was better for national than international transport. Between 2000 and 2012, rail transport grew at a slower pace than road and inland waterways, in both Belgium and the EU28. Over this period, rail's share dropped in both national and international transport. EU28 rail recorded positive growth, both for national (+2%) and international transport (+4%), while Belgian rail showed negative growth, -4% and -6% respectively.

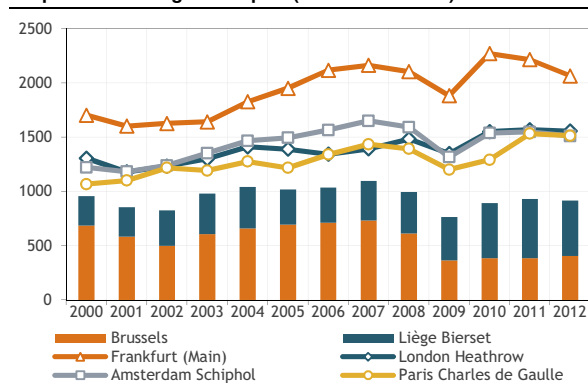
In Belgium, freight activity on inland waterways (Graph 23) recorded the highest growth (+44%) over the 2000-2012 period. This is considerably higher than the EU28 average (+10%) Driven by national transport, Belgian IWW was already above its pre-crisis level by 2010. In Belgium, national transport growth was considerably higher than international transport growth. For EU28, the difference was smaller. In 2012, EU28 inland navigation was also above its pre-crisis level.

Graph 24 - Maritime freight transport (tonnes loaded and unloaded, index 2000 = 100)



Source: Eurostat (Transport database)

Graph 25 - Air freight transport (thousand tonnes)



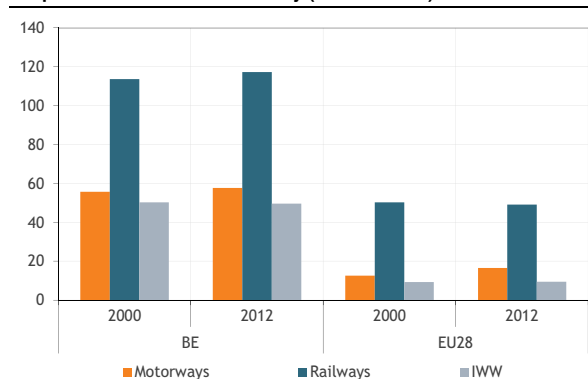
Sources: Eurostat (Transport database) and European Commission

The Belgian maritime ports (Graph 24) showed growth of 26% between 2000 and 2012, compared to 15% for the EU15 ports. The main driver of this evolution was the growth of container transport, in both Belgium and the EU15. In Belgium, container transport increased by 140%; in the EU15 by 93%. After the 2010 rebound, maritime transport growth decelerated in 2011 and recorded negative figures in 2012. In 2012, total maritime transport had not yet fully recovered from the drop in 2009. In particular, dry bulk had not reached its level of before the crisis. While in Belgian ports liquid bulk exceeded pre-crisis levels, the EU15 recorded ever decreasing levels. Despite decreasing activity in 2012, the level of container transport in Belgian maritime ports exceeded the 2008 level. EU15 maritime ports, on the contrary, showed increasing handling of containers in 2012.

With 687 000 tonnes handled in 2000, the cargo division of Brussels National airport was one of the top 10 cargo airports in Europe. In 2008, DHL moved its European hub from the Belgian airport to Leipzig. From 2010, Brussels Airport stood behind the Liège airport at Bierset. In 2012, the volume handled at Brussels Airport increased by 5%, while the Liège Airport recorded negative growth of 6%. None of the top four cargo airports could present positive growth figures.

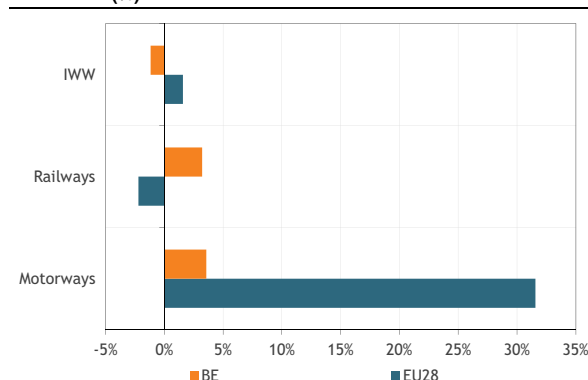
Infrastructure

Graph 26 - Infrastructure density (km/1000 km²)



Source: FPB (Transport database)

Graph 27 - Growth in length of transport infrastructure 2000-2012 (%)



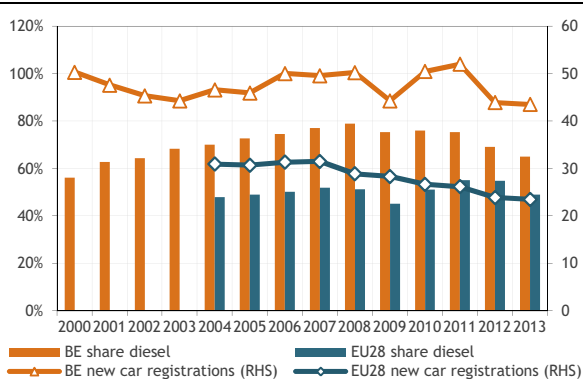
Source: FPB (Transport database)

Belgium is one of the countries with the densest transport networks in Europe. The comparison of the length of networks with a country's area gives a good picture of the concentration of networks. Remarkably, the density of the railways is the highest. In Belgium, a density of 117 km/1000 km² was observed in 2012. Only in the Czech Republic was the railway density higher. The EU28 average is 49 km/1000 km². Rail densities were more than twice the motorway or inland waterways densities. Belgian motorway densities attained 58 km/1000 km². This was more than three times the European average. Only the Netherlands and Luxembourg had a higher motorway density. For Belgian inland waterways, a density of 50 km/1000 km² was observed. The Netherlands had a higher inland waterways density, while the EU28 average was 10 km/1000 km².

Graph 27 compares the evolution of the length of the Belgian transport networks with their evolution in the EU28. The length of the Belgian railways recorded growth of 3.2%, despite an already high density. In the EU28, the length of railways is tending to shrink. Over the 2000-2012 period, the length of Belgian motorways grew by 3.6%. This was considerably lower than the European average. The decrease in the length of Belgian inland waterways was due to reclassification of certain parts of the network. In the EU28, the length of the inland waterways increased by 1.6%.

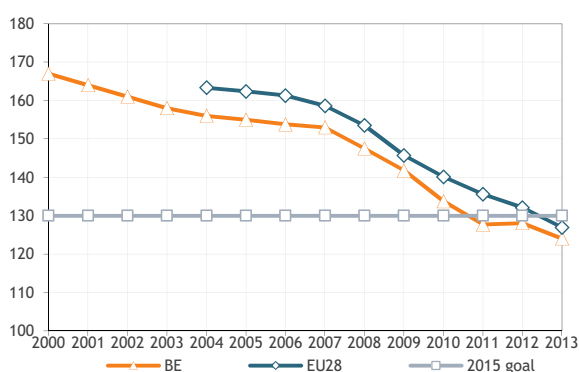
Passenger car stock

Graph 28 - Newly-registered passenger cars and share of diesel (number/1000 inhabitants (R-axis) and % (L-axis))



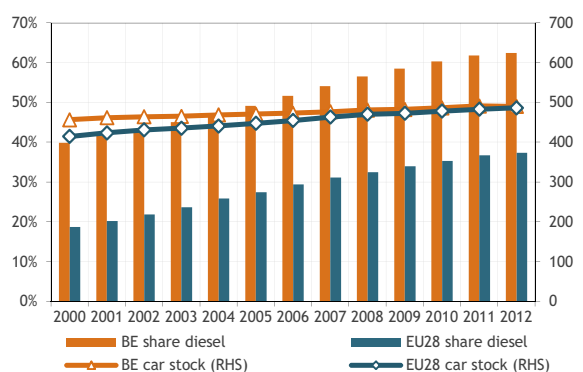
Sources: European Environmental Agency and FPB (Transport database)

Graph 29 - Average CO₂ emissions of newly-registered passenger cars (g CO₂/km)



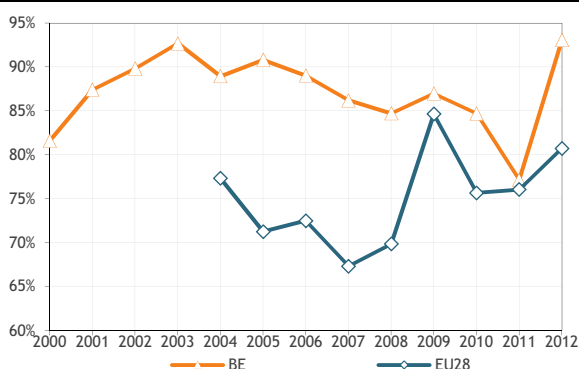
Sources: European Environmental Agency and FEBIAC

Graph 30 - Passenger car stock and share of diesel (number/1000 inhabitants (R-axis) and % (L-axis))



Source: FPB (Transport database)

Graph 31 - Degree of replacement (% of new cars replacing existing cars)



Source: FPB (Transport database)

In 2013, Belgium recorded one of the highest numbers of newly-registered cars per thousand inhabitants (43) in the EU28. Only Luxembourg showed a higher rate. The EU28 rate was significantly lower: 23 per thousand inhabitants. While in 2011 the number of newly-registered cars exceeded its pre-crisis level, Belgian numbers continued to drop in 2013, albeit at a lower rate (Graph 28). EU28 figures continued to shrink steadily from 2007.

In Belgium, the continuous growth of the share of diesel in newly-registered cars seems to have come to an end. In 2013, 65% of new cars had diesel engines. The share of diesel peaked in 2008, with a share in newly-registered cars of 79%. The decrease in 2013 was the third consecutive decrease. In the EU28, the share of diesel cars also dropped and attained 49%.

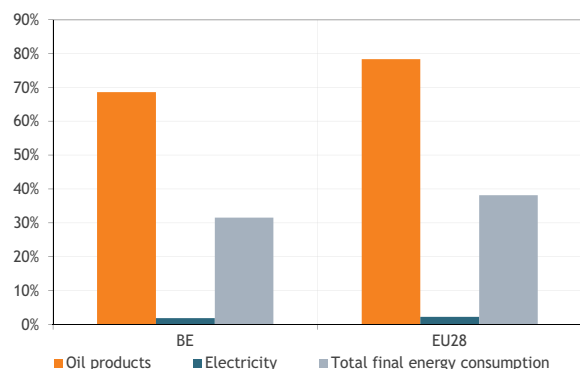
Graph 29 shows that Belgian average emissions of newly-registered cars (124 g/km) were below the 130 g/km target set for 2015 since 2011. Since 2013, average emissions (127 g/km) at the European level have satisfied this target, too. The main drivers for the decreasing average CO₂ emissions for newly-registered cars were technological improvements and the evolution of the shares of the different fuel technologies. Indeed, diesel cars emit less CO₂ than petrol cars. In recent years, the increasing share of petrol engines contributed to the slowing down of the decrease in average CO₂ emissions per km by passenger cars. Belgian average CO₂ emissions were lower than the European average, due to the higher diesel share. After a slight increase in 2012, average emissions decreased again in 2013 (-3.1%). This implies that the shift towards petrol cars is compensated by the decrease in average emissions by these cars.

Graph 30 shows that there were 490 passenger cars for every thousand inhabitants in 2012 for Belgium, compared to 487 for the EU28. Over the 2000-2012 period, the Belgian car stock growth was below the European average. Belgian stock per capita grew 7% over the 2000-2012 period, compared to 17% for the EU28. In 2012, Belgium observed a decrease in the stock per capita, while EU28 stock per capita continued to grow, albeit at a lower rate. From 2006, more than half of the Belgian car stock had diesel engines. In 2012, the share of diesel cars amounted to 62%; in the EU28, the share of diesel cars attained 36%.

In 2012, the Belgian passenger car stock increased by only 34 000 units, while 487 000 cars were newly registered. This implies that 453 000 cars or 93% of the newly-registered cars replaced existing cars (Graph 31). In the EU28 this replacement rate attained 81%.

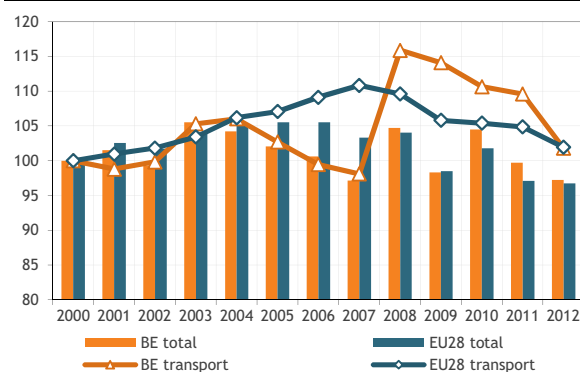
Transport energy consumption

Graph 32 - Share of transport in final energy consumption in 2012 (% per energy carrier)



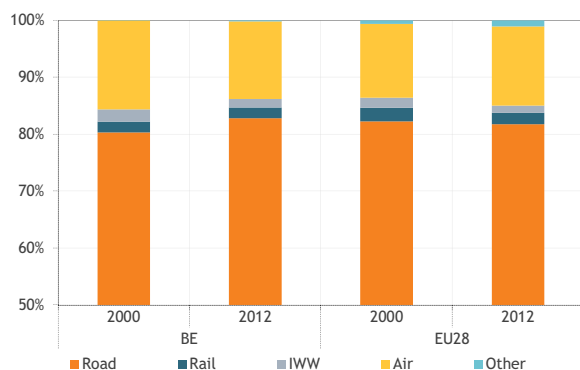
Source: Eurostat (Energy and environment database)

Graph 33 - Total and transport final energy consumption (TJ, index 2000 = 100)



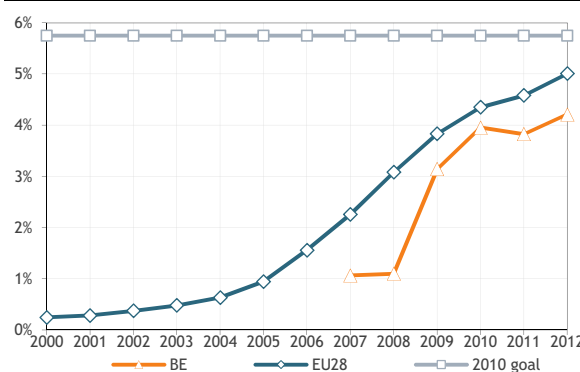
Source: Eurostat (Energy and environment database)

Graph 34 - Modal share of transport in final energy consumption (%)



Source: Eurostat (Energy and environment database)

Graph 35 - Share of biofuels in road transport final energy consumption (%)



Source: Eurostat (Energy and environment database)

In Belgium, the transport sector accounted for 32% of 2012 total final energy consumption, compared to 38% in the EU28 (Graph 32). The relatively lower share for Belgium was mainly due to the different structure of final energy consumption, with Belgium having a large energy-intensive industrial sector.

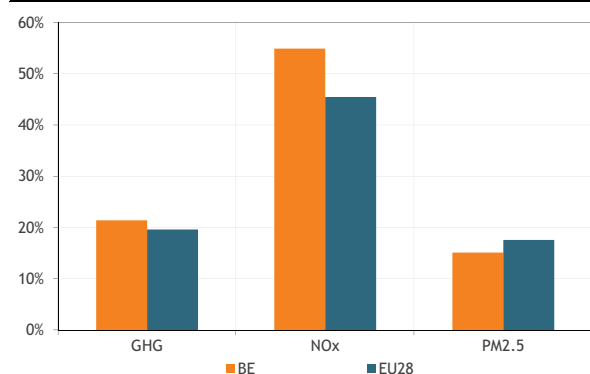
Oil products were the main energy sources, with a share of about 95%. In Belgium, transport accounted for 68% of the final consumption of oil products. In the EU28, this share amounted to 78%. The smaller share for Belgium is due to the fact that a large share of Belgian houses are heated with domestic fuel oil. Belgian electricity consumption by transport accounted for 1.9% of total final energy consumption. This was slightly lower than for the EU28 (2.3%).

Graph 33 shows that, until 2007, Belgian transport and total energy consumption evolved at almost identical growth rates. The significant rise in 2008 was caused by methodological changes in the collection of data for aviation and road transport. The significant decline since 2009 was on account of aviation. In terms of energy consumption, road transport was the main mode, with a share of more than 80% in both Belgium and the EU28 (Graph 34). In Belgium, the share of aviation declined to 13.6%. This was comparable to the EU28 average of 14.0%. The share of rail and inland navigation was marginal: 1.9 and 1.5% respectively for Belgium.

In 2012, neither Belgium (4.21%) nor the EU28 (5.00%) met the indicative target of 5.75% biofuel for all petrol and diesel for transport purposes placed on their markets by 31 December 2010 (Graph 35). In order to increase biofuel penetration, Belgium uses a quota mechanism, where the amount of biofuel benefiting from support is shared amongst different suppliers through calls for tender. This mechanism was put into place in 2006, with 2007 thus being the first year with biofuel consumption. Despite an increase in 2012, the share of biofuel in Belgian diesel and petrol consumption still lagged behind the European average. For Belgium and the EU28, the share increased by 0.4 %-points in 2012.

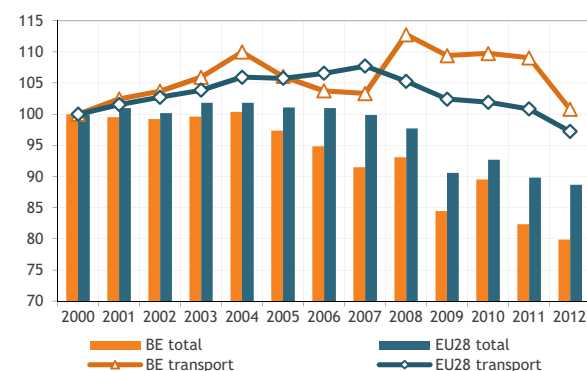
Transport emissions

Graph 36 - Share of transport in total emissions of greenhouse gases (GHG), NO_x and PM_{2.5} in 2012 (%)



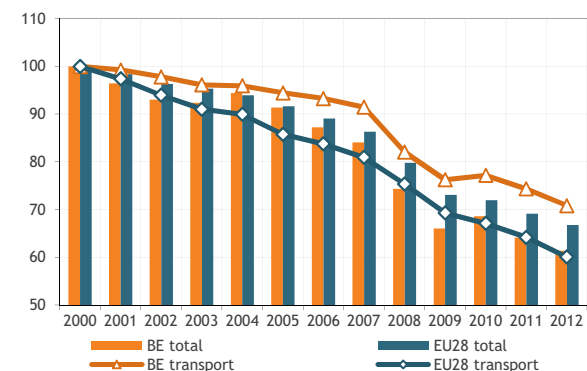
Source: European Environmental Agency

Graph 37 - Total and transport greenhouse gas emissions (tonnes CO₂-eq, index 2000 = 100)



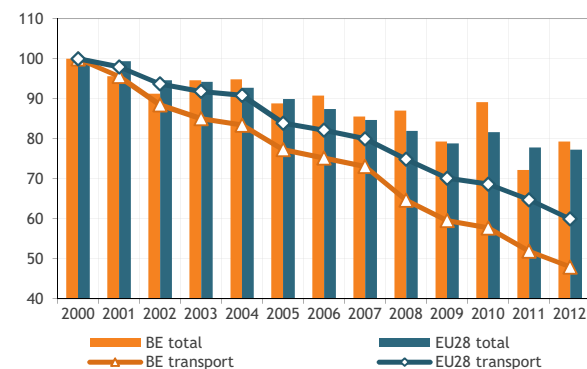
Source: European Environmental Agency

Graph 38 - Total and transport NO_x emissions (tonnes, index 2000 = 100)



Source: European Environmental Agency

Graph 39 - Total and transport PM_{2.5} emissions (tonnes, index 2000 = 100)



Source: European Environmental Agency

Transport activity emits greenhouse gases and air pollutants. Greenhouse gases emitted by transport encompass carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), with CO₂ being the largest. The key air pollutants are nitrogen oxides (NO_x) and PM (particulate matter). The reported PM_{2.5} emissions comprise the fine particles, which are smaller than 2.5 micrometres in diameter.

Graph 36 compares the share of transport in total emissions for the three key pollutants. The share depends on the pollutant and is highest for NO_x. For GHG and NO_x, the share of transport in total emissions was higher in Belgium than the EU28 average. The fact that the Belgian transport sector consumes more diesel (71% of transport energy consumption) than the European average (58%) contributes to this effect, since diesel cars emit more NO_x per km than their petrol counterparts.

For PM_{2.5} emissions, the share was lower than in the EU28. This is due to the fact that emission inventories also include emissions from the residential sector. The Belgian residential sector is responsible for 57% of PM_{2.5} emissions, compared to 46% for the EU28.

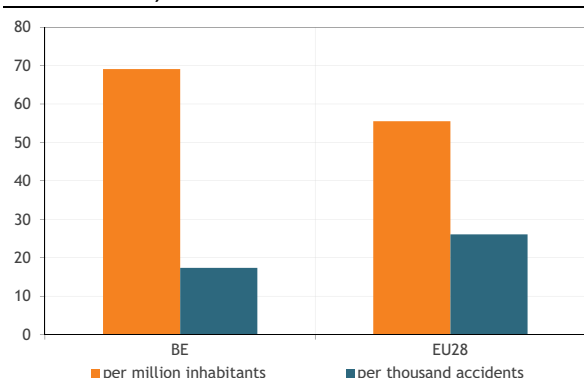
Between 2000 and 2012, GHG emissions (Graph 37) from transport in Belgium increased by less than 1%. In the EU28, a decrease of almost 3% was recorded. As transport GHG emissions growth was higher than total emissions growth, transport increased its share of total GHG emissions in 2012 compared to 2000.

Over the same period, Belgian NO_x transport emissions (Graph 38) dropped by 29%. This was lower than the reduction for the EU28 (-40%). EU28 transport emissions reduction was higher than its total emissions reduction, thus reducing the share of transport in total emissions. In Belgium, transport increased its share of total emissions.

Belgian transport PM_{2.5} emissions (Graph 39) dropped even more than NO_x emissions. Over the 2000-2012 period, they halved (-52%). This reduction was considerably higher than for the EU28. This was due to the fact that diesel car stock growth was considerably higher in the EU28 than in Belgium. Between 2000 and 2012, the number of diesel cars grew by 82% in Belgium, compared to 141% for EU28. For both Belgium and the EU28, the reduction in transport PM_{2.5} emissions was higher than the reduction in total PM_{2.5} emissions.

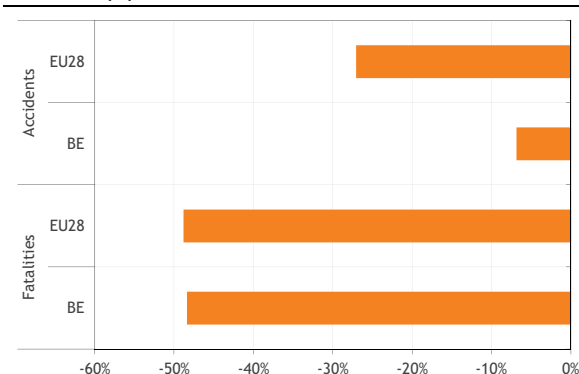
Road safety

Graph 40 - Road fatalities in 2012
(number per million inhabitants and per thousand accidents)



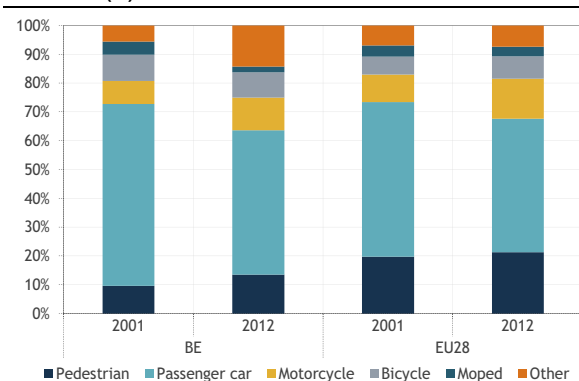
Sources: FPB (Transport database) and European Commission

Graph 41 - Evolution of road fatalities and accidents (2001-2012)
(%)



Sources: FPB (Transport database) and European Commission

Graph 42 - Shares of road user types in road fatalities in 2012
(%)



Sources: FPB (Transport database) and European Commission

In 2012, road traffic accidents claimed 767 lives on the Belgian roads. As a proportion of the number of inhabitants, Belgium scores worse than the European average. In Belgium 69 people out of one million inhabitants were killed in road traffic accidents. This was well above the EU28 average of 56 fatalities/million inhabitants. When decomposed to the location of the accident, Belgium records above-EU-average fatalities on motorways and outside urban areas. The first might indicate that the fact that Belgium is a transit country contributes to the higher accident rate. The second might indicate that ribbon development along major feeder roads contributes to a higher accident rate.

When examined in terms of accidents, the picture looks completely different. The severity of accidents, expressed by the number of fatalities per accident, was significantly lower than the EU28 average (17 fatalities per thousand accidents compared to 26).

The target of the EU was to halve the number of fatalities on European roads over the 2001-2010 period. Graph 41 shows that in 2012, the target had still not been attained, for neither Belgium nor the EU28. While Belgian fatalities still rose in 2011, they significantly dropped in 2012 (-11%), compared to a fall of 4% in the EU28. For Belgium, the reduction over the period 2001-2012 amounted to 48%, compared to 49% for the EU28.

The decrease in the number of accidents is less distinct. This reflects a declining severity of road traffic accidents. In Belgium the number of accidents was reduced by 7%, in the EU28 by 27%.

Car occupants represented about half of the road traffic fatalities in 2012. Graph 42 shows a clear decline in the share of car occupants in the number of fatalities. This decline contrasts with the rising share of motorcyclists and pedestrians. In Belgium, the share of motorcyclists rose from 8% to 11%. In the EU28, the share amounted to 14%. In 2012, 21% of EU28 fatalities were pedestrians. In Belgium, the share was smaller: 14%.

As Belgium is a cycling nation, the share of cyclists among fatalities (9%) was higher than the EU28 average (8%).

Belgian energy trends to 2050

Every three years, the Federal Planning Bureau presents long-term energy and greenhouse gas emission trends for Belgium. The purpose of this new publication is not only to draft a reference scenario which describes the evolution of the Belgian energy system to 2050, but also to investigate the main challenges Belgium will face in the coming decades as well as assess the impact of uncertainties related to economic growth and fossil fuel prices.

The reference scenario simulates the development up to 2050 of the Belgian energy system under current trends and adopted policies and assumes that the legally binding greenhouse gas and renewables targets for 2020 will be achieved. The reference scenario is strongly inspired by the publication *EU Energy, Transport and GHG emission Trends to 2050* (European Commission, 2013). In particular, it is based on the same macroeconomic and energy price framework. However, slight differences are to be noted, reflecting some adjustments concerning the evolution of the production of the nuclear power plants, the potential of (domestic and imported) biomass and recent statistics for solar PV capacity.

The key messages that can be drawn from this study are the following:

- Energy and climate policies and binding targets (i.e. the greenhouse gas emission reduction targets and the renewables targets for the year 2020) that have been adopted so far are expected to improve energy efficiency significantly relative to past trends. However, they do not suffice to meet the Belgian indicative ceiling of 43.7 Mtoe of primary energy demand in 2020. This energy efficiency objective will only be achieved five years later, i.e. in 2025.
- The strong deployment of renewable energy sources triggered, notably, by the 2020 renewable targets is projected to continue, although at a slower pace. Beyond 2020, the development of renewables can be

mainly attributed to the production of electricity, in which they represent no less than 54% in 2050.

- Despite a decrease in fossil fuel imports between 2010 and 2050, energy dependence will remain an important challenge for Belgium. The share of energy imports in total energy needs is projected to reach 86% in 2050 compared to 77% in 2010.
- The planned nuclear phase-out and the implicit ban on coal for power generation will result in a less diversified electricity mix beyond 2025. The power sector will then rely on only two energy sources: natural gas and renewables. Moreover, the high share of renewables in power generation will entail considerable capital investments to cope with the variability of wind and solar and hence ensure generation adequacy.
- Further to greenhouse gas reduction policies such as the EU ETS, along with efforts to reach the binding target in the non-ETS by 2020, greenhouse gas emissions should fall significantly between 2010 and 2020. However, in the absence of additional policies, greenhouse gas emissions are expected to stabilise thereafter up to the end of the projection period.
- A general effect of the projected changes of the energy system on total energy system costs is that the latter should become more capital intensive over time. Having undergone all the structural adjustments to cope with the 2020 targets and policies, total energy system costs should grow more slowly than GDP, leading to a decreasing ratio of energy system costs to GDP in the period 2020-2050.

“Le paysage énergétique belge : perspectives et défis à l’horizon 2050 / Het Belgische energiesysteem in 2050: Waar naartoe?”,

*D. Devogelaer, D. Gusbin,
Outlook, October 2014*

Structural determinants of Belgian public health expenditures

This working paper describes the results of ongoing efforts at the FPB to improve the models that are used to explain and project Belgian public health care spending. The starting point of the new models is the breakdown of the item ‘social benefits in kind’ in the national accounts into acute and long-term care expenditures. These aggregates define the dependent variables of the econo-

metric time series models presented in the paper. The models specify the dependent variables as functions of a set of determinants selected from the literature. An important innovation in the model for acute health care expenditures is the introduction of a new set of proxies for medical technological progress based on the number of approved new drugs and medical devices.

Acute health care spending (expressed in real per capita terms) is modelled as a function of income (real per capita GDP), the age composition of the population (the shares of the population aged 65-74, 75-84 and 85+ in the total population), the unemployment rate, the technology proxies mentioned above and a dummy variable capturing the effect of the extended health insurance coverage for the self-employed introduced in 2008. The 'new drugs' technology variable is based on Belgian Farmanet data, which provide information on the number of newly approved drugs at ATC 7-digit level. These are drugs based on new molecules, and as such can be considered 'radical' medical technological innovation. For the 'new devices' variable, no data were available to construct homogeneous time series for Belgium, so this variable was replaced by the number of devices approved as 'Class III' devices by the US Food and Drug Administration (FDA). These are devices which are not substantially equivalent to any device already on the market and therefore require a rather stringent approval process that is comparable to the procedure for new drug applications. According to the estimation results, the 'new drugs' variable has a positive (cost-increasing) effect on health spending, while the 'new devices' proxy has a small but significant negative effect. Overall, the medical technology proxies have a substantial positive net contribution to the observed historical growth of per capita real acute health care expenditures. The other variables all have positive and significant effects. The estimated income elasticity is rather low (around 0.3) compared with the values usually reported in the litera-

ture, but this can be explained by the fact that the technology variables capture a substantial part of the observed historical growth in spending (with a combined elasticity around 0.7).

Long-term care spending (expressed in real per capita terms) is modelled as a function of income (real per capita GDP), the age composition of the population (the shares of the population aged 65-74, 75-84 and 85+ in the total population) and the average life expectancy of these age groups. Life expectancy was introduced in order to account for possible shifts in spending patterns as a result of increased longevity: if the extra life years are spent in good health (or more precisely, without functional disability), the effect of the age group variables on long-term care spending can be expected to diminish over time, at least for the younger elderly. This was indeed confirmed by the estimation results, which imply a slightly diminishing impact of the share of the 75-84 year age group and an increasing impact of the share of the oldest old (85+) on spending.

The new models have been used to project Belgian public acute health and long-term care expenditures over the medium to long run.

*"Structurele determinanten van de publieke gezondheidszorguitgaven",
P. Willemé,
Working Paper 6-14, September 2014*

Modal choice for travel to work and school: Recent trends and regional differences in Belgium

Recent transport research suggests that car use is reaching its saturation level in many advanced economies. Particularly in metropolitan areas, car use is declining in favour of slow and public transport modes. Also, young adults are found to have shifted travel preferences away from private cars. Looking at changes in transport modes for travel to work and school, we find similar trends in Belgium. The results are based on recent mobility data for 2011-2013 from the Belgian Labour Force Survey (LFS), which were compared to the Socio-Economic Survey of 2001.

Traffic counts show that the total number of kilometres driven by private cars in Belgium continues to increase. At the same time, and much in line with findings in other developed countries, we observe a shift away from the car in two specific populations: people working in the metropolitan area of Brussels and students in higher education. First, for travel to workplaces located in the Brussels-Capital Region, the increased use of public

transport has challenged the dominant position of private cars. Second, among students in higher education, travel by car for daily trips to college has dropped considerably in all three regions, with a sharp decline in the Brussels-Capital Region.

Travel to work

Individual cars remain the main transport mode for 75% of the commuting trips to jobs located in Flanders and 85% in Wallonia. Yet among people working in the Brussels-Capital Region, car use has dropped to 48%, compared to 57% at the beginning of the century. Public transport in Brussels has gained in proportion importance and is used for 44% of the trips to work.

For daily commuting over short distances, current transport choices differ strongly between regions: in the Brussels-Capital Region, bus, tram and metro are used as the main alternative to private cars. Flanders most

noticeably differs with the frequent use of the bicycle. In Wallonia, the car remains the dominant transport means for commuting, even for short distances; its high share is, however, somewhat mitigated by the more common use of carpooling. For longer travel distances to work, only the Brussels-Capital Region differs, with a high share of the train as an important alternative to the car. In Flanders and Wallonia, jobs located at further distance from home are predominantly reached by car.

Modal choice of students

Among students in higher education, the modal shift from the car to slow and public transport modes is more general and more noticeable than for workers. In the three Belgian regions, the share of students that travel to college by car has strongly decreased since the begin-

ning of the century. In Brussels, the decline has been most pronounced: today, less than one out of ten students go to college by car. In Flanders, car use among students has dropped to 19% and in Wallonia to 31%. Public transport is the preferred transport means for students in all three regions. At the same time, student's choices for slow modes and public transport reflect regional differences similar to those of workers. Students in Brussels mainly travel by bus, tram or metro, Flemish students are intense bicycle users, and Walloon students prefer carpooling.

*“Modal choice for travel to work and school: Recent trends and regional differences in Belgium”,
K. Geurts,
Working Paper 7-14, October 2014*

Qualitative employment data 1999-2012, update June 2014

The qualitative employment database contains domestic employment figures disaggregated by gender, age class and education level. The June 2014 update of this database extends the existing disaggregation for persons employed to labour volumes (hours worked) and wage costs for employees. The data are now available for 38 NACE rev. 2 industries for the period 1999-2012.

A breakdown is published according to gender, three major age classes (under 30, 30-49 and over 50) and five educational attainment levels: primary, lower secondary, higher secondary, higher short type, and higher long type and university education.

The starting points are the industry totals for employees and the self-employed in the detailed national accounts. First, these industry totals are broken down using social security data. For employees, the number of persons employed, labour volume and wage costs per industry are split up by gender, age class and sub-status (blue collar workers, white collar workers and civil servants). For the self-employed, the number of persons employed per national accounts industry is split by gender, age class and sub-status (self-employed in the strict sense, paid and non-paid assistants). These social security data are connected with the NBB's register of firms at the firm/institution level, which guarantees a match with the industry classification used in the national accounts. Raw social security data are cleaned of time series breaks and, where possible, adapted to concepts used in the national accounts.

Next, the remaining breakdowns are generated using survey data. The labour volumes of the self-employed are split by gender and age class using an estimate of the average number of hours worked from the Labour Force Survey data. The breakdown of persons employed and labour volumes by educational attainment is also estimated on the basis of the Labour Force Survey data. Wage costs for employees are disaggregated by educational attainment level by combining the previously calculated labour volumes with skill premiums estimated on the basis of data from the Wage Structure and Distribution Survey.

Not all industries are covered in the Wage Structure Survey. The most important of these is Public administration and defence; compulsory social security (NACE 84), which made up 13% of the labour volume in 2010. No wage costs per education level are given for this industry.

Qualitative employment data for Belgium, 1999-2012
http://www.plan.be/databases/database_det.php?lang=en&ID=23

Kwalitatieve arbeidsgegevens voor België, 1999-2012
http://www.plan.be/databases/database_det.php?lang=nl&ID=23

Évaluation qualitative de l'emploi: données 1999-2012
http://www.plan.be/databases/database_det.php?lang=fr&ID=23

Research in progress

The long-term budgetary and social challenges of ageing

The long-term model is used to project the budgetary consequences of ageing. For acute health care and long-term care public expenditure, new models were introduced in 2014. The first, notably, takes into account explicitly the impact of technological progress. The social dimension of pension benefits is investigated using a microsimulation model.

Contact: maltese@plan.be

Employment and retirement in the civil service

The question of whether the level and the structure of employment in government bodies in Belgium is appropriate has been raised frequently. A research project at FPB addresses this question, including the implications of public employment dynamics on public pensions, and the composition and dynamics of civil servant pensions.

Contact: pubfin@plan.be

Macroeconomic, budgetary and ghg emissions prospects

Using a consistent modelling approach, medium-term macroeconomic and budgetary prospects – taking the 6th State reform into account – as well as the evolution of greenhouse gas (GHG) emissions are being investigated. A consistent regional-national version of the model developed in collaboration with experts from the regional governments of Brussels, Flanders and Wallonia is generating regional results.

Contact: hermes@plan.be

Economic drivers of migration flows

Modelling migration flows in population projections is recognized as a challenge. Although economic theory demonstrates the importance of economic drivers for some migration flows, these results are barely used in population projections. An ongoing research project aims at including some econometric results about these drivers in the FPB demographic model.

Contact: demo@plan.be

Progress in economic modelling at the FPB

On-going projects aimed at incorporating new approaches in economic modelling are supported by different institutions. Partners from the three Regions (IBSA-BISA, SVR and IWEPS) support the development of a "bottom-up" approach in the regional/national medium-term model. The federal sickness and disability fund (RIZIV-INAMI) collaborates on modelling health care expenditure. The EC supports the development of a sectoral international model. A federal research fund (BELSPO) and the Fed-

eral Public Service Social Security support modelling migrations in the dynamic microsimulation model, which is managed using the LIAM2 software developed at the FPB with the support of Luxembourg partners (IGSS – the Ministry of Social Security – and CEPS/INSTEAD).

Contact: contact@plan.be

Offshoring

The FPB is continuing to work on offshoring. The project describes the level and evolution over time of offshoring of activities carried out in Belgium, as well as the impact on employment and productivity. The analysis is made on an industry-level, as well as on data for individual companies.

Contact: bm@plan.be

Innovation

Innovation is a key determinant of productivity growth. In the current FPB research on this topic, particular attention is given to the question to what extent public policy can facilitate innovation leading to the creation of economic activity and jobs.

Contact: ck@plan.be

Transport modelling

The FPB model on transport demand for passengers and goods PLANET will be further developed by introducing a regional dimension. The aim is to present the 2015 outlook for transport demand with a new version of the model. As regional governments have the competence for major issues affecting transport demand, a more accurate modelling of transport demand requires a development of the regional dimension.

Contact: transport@plan.be

Long-term energy outlook

After the publication of an energy outlook for Belgium up to 2050 (see elsewhere in this issue), alternative policy scenarios will be studied.

Contact: energy@plan.be

Indicators complementing GDP

The FPB received the mission to develop and publish indicators on quality of life, human development, social progress and sustainability of the economy (act of 14 March 2014). This set should consist of a limited number of indicators. As these indicators have to measure the evolution towards goals for society, the FPB's experience in sustainable development indicators will be useful in constructing the set of indicators complementing GDP.

Contact: sustdev@plan.be

Recent history of major economic policy measures

September 2014	<p>Electricity TSO Elia took two measures to avoid black-outs during winter. It did so because three out of Belgium's total of seven nuclear plants are inactive for several reasons, and two more should be closed permanently by February 2015. This has made the country prone to shortages during cold days. First and most important, Elia updated its three-year-old 'disconnection plan' that would guide the country through such periods of shortage. The plan determines the areas that will be disconnected when shortages occur. This way, brown-outs are controlled and their burden is shared equally among the population. Second, it announced an increase in the tariff for imbalances to 4 500 EUR per MWh. This very high price should give suppliers an incentive to adopt a policy to avoid shortages.</p> <p>The ECB lowered its main refinancing rate by 10 basis points to 0.05%.</p>
August 2014	<p>The Flemish municipalities and electricity incumbent Electrabel agreed to swap their stakes in energy supply and distribution. DSOs will then be fully public and Electrabel's supply branch ECS fully private. This way, ownership separation will be established four years earlier than required by law.</p>
July 2014	<p>In July 2014, the federated authorities presented their government agreement for the period 2014-2019. The budget of the Flemish government and the Brussels Capital Region should be in balance from 2015. The Walloon Region and the French Community plan to reach budgetary equilibrium in 2018.</p> <p>As part of the sixth State Reform, the competence for energy distribution tariffs was transferred from the federal market regulator CREG to the three regional regulators (VREG, CWaPE and Brugel).</p>
June 2014	<p>The telecommunications market regulator BIPT/IBPT established an observatory that is responsible for evaluating the quality of mobile networks. This has proven to be desirable since the network operators are not sufficiently transparent. In the meantime, the fourth 3G licence – which had been auctioned only three years ago – was relinquished by its owner Telenet-Voo. Rolling out a full network appeared to be uneconomical, and Telenet is already successful as an MVNO.</p> <p>The Flemish government stopped subsidising large-scale biomass generation plants for two reasons. First, the subsidies posed a relatively high burden on the regional budget. Second, subsidies like these are controversial since this kind of electricity generation is not as sustainable as it has seemed.</p> <p>Belgium's general government deficit was brought down to 2.6% of GDP in 2013. For this reason and others, the European Commission recommended that the EU Council of Ministers close the excessive deficit procedure initiated in 2009 against Belgium.</p> <p>A number of institutes were added to the list of scientific institutions that are eligible for the federal R&D wage subsidies.</p> <p>The ECB lowered its main refinancing rate by 10 basis points to 0.15%.</p>
May 2014	<p>In the context of guaranteeing gender neutrality, a requirement was introduced that firms employing 50 workers or more document the company's wage structure biennially.</p>
April 2014	<p>In a 2014-2017 update to the Stability Programme, the Belgian authorities considered reducing the headline deficit to 2.1% of GDP in 2014 by improving the structural balance by 0.5% of GDP, as compared to 2013. Over the period 2015-2017, the structural balance will be further improved by 0.7% of GDP per year so that the MTO (medium term objective), a surplus of 0.75% of GDP in structural terms, is reached in 2017 (one year later than planned in the previous update of the Stability Programme). It will be located in Entity I (federal level, including social security) while Entity II (federated and local entities) will a balanced budget.</p> <p>The wage subsidy for the non-profit sector (Sociale Maribel) was increased retroactively as from January 2014 to compensate for the rise in labour costs caused by the harmonization of blue-collar and white-collar worker regulations.</p> <p>Postal incumbent bpost entered the BEL20 stock market index. The company is state owned for 50% of the shares plus one, the remainder having been floated in June 2013.</p>
March 2014	<p>Following a government decision taken in December 2013, electricity transmission system operator (TSO) Elia was given the task of installing generation capacity that could secure supply in times of shortage. The capacity should amount to 800 MW and be available for three years starting 1 November 2014.</p> <p>The Belgian and Italian gas TSOS - Fluxys and SNAM, respectively - decided to manage their foreign pipelines jointly. This will create a significant player in European gas transport. The pipelines concerned run through France, Germany and some other countries, the latter in particular eastbound from Italy.</p>
February 2014	<p>Existing employers' SSC cuts for specific jobs (art performers, domestic helpers, daytime child carers) and employment statuses (subsidised labour contracted by local authorities, art.60 social aid job programmes) will be brought inside the general framework of employers' SSC cuts (Proposal of Law 3.354).</p>

A more complete overview of "Recent history of major economic policy measures" is available on the FPB web site (<http://www.plan.be>)