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The previous Survey *of Belgium was issued in July 2009.*

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BASIC STATISTICS OF BELGIUM, 2010

THE LAND

Area (thousand km^2)	34.0
Agricultural area (thousand km^2, 2009)	15.4

Major urban areas (thousand inhabitants)	
Brussels	1 089.5
Antwerp	985.3
Liege	604.1
Ghent	527.2

THE PEOPLE

Population (thousand inhabitants)	10 840
Inhabitants per km^2	355
Net migration (thousands)	55.4

Total labour force (thousands, 2009)	4 800
Total civil employment (thousands, 2009)	4 421
As a percentage of total (2009)	
Agriculture	1.5
Industry	23.5
Services	75

PRODUCTION

Gross domestic product (billion EUR)	352.5
Gross domestic product per head[1] (EUR)	32 675.6

Gross fixed capital formation (per cent of GDP)	20.3
Gross fixed capital formation per head[1] (EUR)	6 621.3

THE GOVERNMENT

Public consumption (per cent of GDP)	24.3
General government total expenditure (per cent of GDP)	53.1
General government total revenue (per cent of GDP)	48.9
Gross public debt, Maastricht (per cent of GDP)	96.7

Last general elections: 13 June 2010	
Composition of the Chamber of Representatives (seats)	150
New Flemish Alliance	27
Socialist Party (French speaking)	26
Christian Democratic and Flemish	17
Reformist Movement	18
Socialist Party (Flanders)	13
Open Flemish Liberals and Democrats	13
Flemish Interest	12
Others	24

FOREIGN TRADE

Exports of goods and services (per cent of GDP)	81.5
Main exports (per cent of total exports)	
Mineral fuels, lubricants and related materials	8.8
Chemicals and related products	30.5
Manufactured goods	17.5
Machinery and transport equipment	20.3

Imports of goods and services (per cent of GDP)	78.3
Main imports (per cent of total imports)	
Mineral fuels, lubricants and related materials	13.9
Chemicals and related products	25.4
Manufactured goods	14.7
Machinery and transport equipment	23.2

THE CURRENCY

Monetary unit: euro

Currency unit per USD, average of daily figures:	
Year 2010	0.7550
May 2011	0.6985

1. 2009 data for population.

Executive summary

Belgium weathered the crisis well with a relatively modest rise in unemployment. Subsequently, the economy has been recovering faster than the euro area and the fiscal deficit is falling rapidly. Nevertheless, Belgium is at a crossroads with public debt at 97% of GDP, and a renewed and sustained effort to prefund ageing costs is needed, including revisiting intergovernmental prefunding agreements. To boost subdued potential growth, measures to substantially increase employment are required while greener growth should be secured through more extensive use of environmental taxation.

- **Fiscal policy should focus on implementing a credible pre-funding strategy.** *The 2011 Stability Programme aims at a fiscal consolidation of at least ¾ per cent of GDP per year, securing a small surplus by 2015. This is an important step towards securing fiscal sustainability, but achieving it requires well designed plans for spending restraint and better control of ageing-related cost increases (entailing reforms of social security). The political commitment to achieve these goals could be buttressed by a stronger fiscal framework including spending rules, multi-annual budgeting and a larger role for independent analysis and assessments. Importantly, any reform of the fiscal federalism arrangements should also focus on the burden-sharing of fiscal consolidation.*
- **The relatively good labour market performance has not resolved deep-rooted structural problems.** *Labour hoarding, facilitated by intensive use of reduced working hour schemes, and targeted measures have supported employment. Nonetheless, labour market segmentation has deepened as the increase in unemployment mostly affected workers with weak labour market attachment. Making the labour market more inclusive necessitates broad reforms. Younger people should be able to combine work and studies, and the special youth minimum wage should be increased more gradually. Better integration of immigrants requires better language training and adapting education to their needs, such as later streaming. More generally, employment creation would benefit from linking wage growth to domestic productivity developments. Higher participation can be secured by reducing high effective marginal tax rates and closing exit routes to early retirement to boost the effective retirement age.*
- **The economy is energy and emission intensive,** *making energy policies the keys to greener growth. Environmental taxation, particularly low in Belgium, should be the main tool to deal with these issues. The EU emission trading scheme addresses emissions in electricity generation and industry, but emissions from transport and housing should be reduced through a well-designed* CO_2 *tax. In addition, negative transport externalities should be addressed by fuel taxation, road pricing and congestion charges, while measures promoting commuting and company cars should be scaled down. Furthermore, measures to improve thermal efficiency of housing should be refocused on low-income households. In general, there is a need for reviewing the division of environmental responsibilities to reduce the costs of lack of co-ordination and harmonisation of policies. In particular, renewable energy would be better promoted by merging the green certificate markets. Water policies would also be more efficient if organised by river basins and not by regions, and by better internalising pollution costs in water charges.*

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Assessment and recommendations

The recovery is gathering pace

Belgium has weathered the global crisis relatively well, with a smaller rise in unemployment than the OECD average and an economic recovery that is stronger than in the euro area. At the same time, inflation has accelerated from one of the lowest to one of the highest in the euro area (it stood at around 3½ per cent in early 2011), reflecting a relatively fast and strong pass-through of energy prices. This may create a risk to the recovery as persistent inflation pressures, arising from the automatic indexation of wages (as well as transfers and a number of service prices) and weak competition in energy markets may eventually hurt Belgian cost competitiveness.

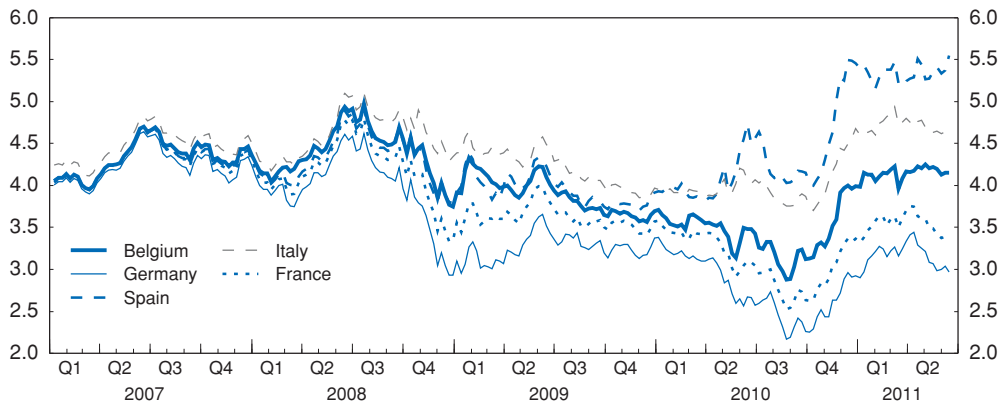
The relatively favourable economic outlook should contribute to secure fiscal sustainability, but will not be sufficient so that renewed efforts should be made, notably in the context of the project to reform fiscal-federal arrangements. An extensive use of the reduced working time schemes meant that unemployment mostly affected workers with weak labour market attachment, potentially increasing labour-market segmentation. Structural reforms are needed to boost employment, particularly in view of the ageing of the working force and to bring excluded groups into the labour market. Lastly, an ongoing policy challenge is to achieve sustainable green growth, notably by adhering to international agreements, such as the European 20/20/20 strategy, which in the absence of cost-efficient policies could be particularly burdensome for the relatively energy-intensive Belgian economy.

The crisis has enhanced the urgency for fiscal consolidation

The authorities' strategy to secure fiscal sustainability has been to prefund ageing-related cost increases through sustained budget surpluses and higher employment rates. To achieve this objective the public debt-to-GDP ratio needs to fall sharply in the coming decades, reducing interest payments to create room for financing ageing-related expenditure increases. The global crisis and the need for saving a number of financial institutions derailed the strategy, which was already off-track prior to the crisis. In 2010, the fiscal deficit was still around 4¼ per cent of GDP and public debt reached almost 97% of GDP – about 12½ percentage points higher than the pre–crisis level and back to the level that prevailed in the early 2000s. As a result, the fiscal sustainability gap is estimated to be more than 5% of GDP – a gap that has to be closed to avoid abrupt changes in public spending or taxation to finance ageing related spending increases.

Financial market concerns about sovereign debt have touched Belgium, increasing the long-term interest rate differential vis-à-vis Germany to 135 basis points in early 2011 (as compared with a virtual zero differential before the crisis), before falling back to around 100 basis points. Combined with higher German rates from early autumn 2010 onwards, this boosted Belgian interest rates some 125 basis points to above 4% in early spring 2011 (Figure 1). There is a risk that contagion effects could widen the spread further, although Belgium has a lower fiscal deficit and a better debt reduction record than many other European countries. If sovereign debt concerns are not reversed, higher interest rates will hurt public finances both through lower economic growth and increased debt-service costs.

Figure 1. **Interest rate differentials *vis-à-vis* Germany remain high**[1]



1. Interest rates on 10-year government bonds.

Source: Datastream.

StatLink http://dx.doi.org/10.1787/888932459033

Post-crisis fiscal policy should restore sustainability through spending restraint

Reflecting broad political support for fiscal consolidation, the caretaker government adopted a 2011 budget that is expected to lower the deficit by ½ per cent of GDP. In the medium term, the 2011 Stability Programme foresees a small budget surplus in 2015, implying fiscal consolidation of around ¾ per cent of GDP each year, which is comparable to the effort made in the run-up to the euro introduction. Such a substantial structural improvement would be an important step towards putting the prefunding strategy back on track. *To secure fiscal sustainability and to address financial market concerns, an urgent task is to implement the consolidation path through well-specified structural measures to achieve consolidation of at least ¾ per cent of GDP per year until 2015. In the context of financial market volatility, the government should consider the planned consolidation path as a minimum requirement.* After 2015, fiscal efforts should focus on securing the necessary surpluses to prefund ageing related spending increases. To avoid hurting long-term growth prospects, the focus should be on reducing spending at all levels of government and broadening tax bases by removing tax expenditures. The devolution of powers to regions and communities has substantially increased public sector wage costs, calling for increased co-ordination, notably to reduce overlapping responsibilities. *Thus, a thorough cost efficiency review of public administration at all levels of governments would help longer-term consolidation efforts.*

Social security needs to be modernised

Starting in 1994, the social security system was progressively reformed by replacing individual contributions to social security funds (such as health, unemployment insurance, and pensions) with a single contribution. Pooling the funding allows the smooth transfer from surplus funds to deficit funds, but the reform did not strengthen incentives for spending control in individual programmes. Nevertheless, an important pension reform was decided in 1996. As a consequence of the social security reform sustainability needs to be assured at the overall level. Currently, the federal government is responsible for a large share of financing: the federal government transfers more than 7% of GDP, or about a third of all social security spending, to other bodies. The government determines the parameters in the system in consultations with the social partners. Only limited reforms have been implemented in the administration and tasks of the funds, which remain complex with for example large differences in pension regimes and multiple administrative levels in the unemployment insurance. Thus, the institutional landscape should be evaluated to identify possible improvements and strengthen incentives and budget constraints.

The tax system can be made more growth conducive by shifting taxation from labour to less distortive taxes. This can be achieved by moving further towards tax-financing social security (*i.e.* reducing the reliance on social security contributions). A first candidate to be financed via general taxation could be health care, reflecting its universal provisions and its complex governance, which means that most parametric reforms have originated from the federal government. If a more gradual and piecemeal approach is chosen, then stronger feedback mechanisms should be introduced in the non tax-financed programmes to secure endogenous responses to increased spending pressures. For example, reductions in contributions for specific groups should be fully financed via offsetting revenue increases from other contributors.

Fiscal federalism reform should also focus on securing sustainability of public finance

The strategy to secure fiscal sustainability at different levels of governments has relied on inter-governmental agreements, most of which have been anchored in recommendations from the High Council of Finance. In recent years, the strategy stipulated that regions and communities should balance their budgets, and the federal government and social security system generate the planned surpluses. However, the federal level has had the slowest growing revenue – partly reflecting tax reform – while it is responsible for most of the ageing-related cost increases and interest payments, which are set to pick up significantly. This combination makes the current arrangement increasingly untenable without providing additional resources to the federal level or implementing some form of burden sharing with the regions and communities. The regions and communities, on the other hand, have benefited from dynamic revenues, reducing their incentives to control expenditure growth.

In this context, any reform of fiscal federalism needs to observe a number of principles to secure sustainable consolidation efforts, as discussed in the previous *Survey*. A first guiding principle should be ensuring sustainable burden-sharing of consolidation responsibilities. This means that, under the current prefunding strategy with consolidation efforts taking

place at the federal level, *the federal level of government should be provided with revenues sufficient to meet the cost of population ageing and public debt service*. An implication would be fewer resources allocated to sub-federal levels of government. This would entail a greater need for ensuring that intergovernmental transfers reflect services provided, for instance implying the introduction of a workplace element in the sharing of income taxes. Also, transfer arrangements should be sustainable over the medium- to long-term. *For example the implicit pension transfer from the federal level to sub-federal level of governments should be removed by making each level of government responsible for the pensions of their employees*. Another guiding principle should be an efficient spending and taxation structure, which necessitates a better alignment of expenditure and revenue responsibilities at the sub-federal level of government. An implication is that *the regions and communities should develop their own tax bases*. *There is also a need for greater coherence of policies in areas of national interest to improve cost-efficiency of public services via better and less costly co-ordination or changes in the federal division of powers*.

The alternative to allocating more financial resources to the federal government is for the regions and communities to take greater responsibility for securing the increasing surpluses necessary for the prefunding strategy. Either way, there is a need for implementing *an internal stability pact to share pre-funding responsibilities and stipulate pre-agreed automatic sanction mechanisms and recovery paths in case of non-compliance with commitments – particularly important issues if EU reforms lead to direct sanctions for fiscal underperformance*. Determining how the prefunding burden should be shared among different levels of governments is a complex task, not least because the fiscal capacity of governments depends on the size of implicit transfers in the revenue sharing mechanism.

A stronger fiscal framework would facilitate consolidation

In the 2000s, following the euro adoption, it proved more difficult to generate sufficient political support for securing the surpluses needed to implement the pre-funding strategy, pointing to the need for a reform of the fiscal framework. *To avoid spending of windfall gains or excessively rapid tightening, fiscal policy should be governed by a medium-term budget surplus consistent with the prefunding strategy. The rule should be made operational by adopting expenditure ceilings for all levels of governments and for individual spending departments. To facilitate assessments and comparisons, a common format for budget presentation should be adopted at all levels of government*.

Political commitment would be buttressed by more integrated oversight and evaluation of fiscal policy. The High Council of Finance (HCF) provides regular assessments of long-term spending pressures, recommendations on budget targets for different levels of governments, and evaluations of Stability Programmes. To complete this oversight of fiscal policy, *the HCF's tasks should be extended to include evaluation of expenditures at all levels of government. To secure equal treatment, the HCF's ex-ante and ex-post in-depth evaluations should cover all governments and should include evaluation of the adherence to fiscal rules and the internal stability pact. At the same time, the National Account Institute (which provides technical expertise, such as projections of key macroeconomic variables) should evaluate the economic and fiscal consequences of main policy measures at both the federal and sub-federal levels of government. This could include assessments of current subsidiarity principles in terms of which level of government can provide individual public services most efficiently, as this is currently not analysed on a*

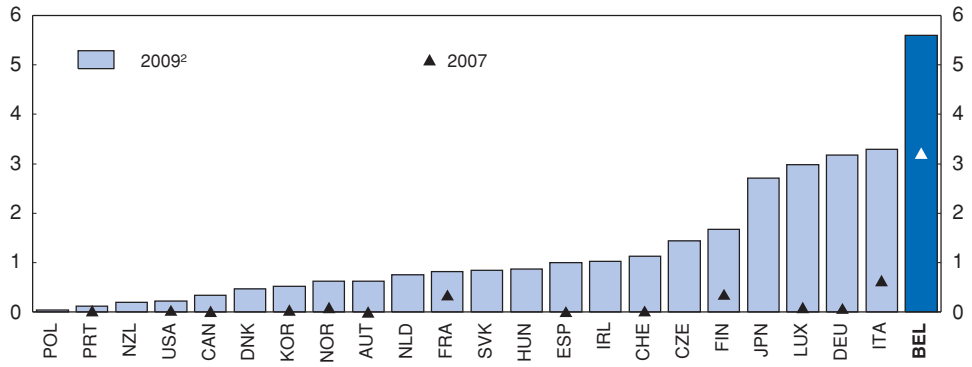
systematic basis. The National Account Institute's input to the budgetary process could include projections of public finances under unchanged policy assumptions to facilitate assessments of the fiscal stance.

The crisis has increased segmentation in the labour market

The relatively good labour market performance relied to an important extent on a doubling of enrolment in reduced-working hours schemes (Figure 2), which are intended to help firms to retain strong ties with their key workers during temporary downturns in activity. By 2009, the enrolment reached 6% of all employees (3% on a full-time basis), implying that Belgium relied twice as much on such schemes as the second most intensive users of such schemes (Germany and Italy). Even though temporary and interim workers were included in the schemes during the crisis, the schemes mostly included workers with permanent contracts, while other workers were faced with higher unemployment, increasing segmentation in the labour market.

Figure 2. **Average monthly take-up rate of reduced working schemes in selected countries**[1]

Percentage of employees



1. Take-up is measured by the average stock of participants.
2. Data refer to 2009Q1, 2009Q3 for Austria, Luxembourg, the Netherlands, New Zealand, Portugal, the Slovak Republic and Spain.

Source: Hijzen, A. and D. Venn (2011), "The Role of Short-Time Work Schemes during the 2008-09 Recession", *OECD Social, Employment and Migration Working Papers*, No. 115.

StatLink http://dx.doi.org/10.1787/888932459052

The main scheme for blue-collar workers has few checks and balances to limit deadweight costs. Eligibility criteria are also relatively weak as no explicit agreements with unions are required and there are no conditionality requirements, such as provision of training, presentation of recovery plans, restrictions on firing, or job search requirements for enrolled workers. As a result, the use of the scheme during even normal economic circumstances is as large as in Germany during the crisis. *To limit the use of the schemes to firms in temporary difficulty, firms should be required to demonstrate a significant drop in activity and their participation should be approved by the relevant labour market authority.* The scheme for blue-collar workers has a higher degree of flexibility for employers than in most other countries, as firms can fully determine the amount of reduction and only need to notify

shortly in advance. *To avoid systematic usage, re-entry into the scheme should be restricted, which would also encourage firms to adopt new production planning, processes and technologies. Alternatively, employers should be responsible for financing the initial period of enrolment*. In this context, the government has asked the social partners to propose measures in this area by end-2012.

Employers do not have to pay social security contributions for non-worked hours and, including top-ups from the employers, participating employees can maintain up to 100% of their income. The government has recently legislated that employers are obliged to provide a top-up of a minimum EUR 2 per day. *Parking of key workers in the system should be avoided by requiring employers to (partially) re-pay subsidies if workers are fired after enrolment and by making enrolled workers available for hiring by other firms*. Such features are, for example, incorporated in the Dutch scheme. *Indeed, incentives for employees to seek alternative employment should be enhanced by reducing benefits over time, banning top-ups from employers, and introducing a fixed upper limit on days of enrolment per year.*

Improving young people's labour market transition

Young people have a difficult transition into the labour market, suffering from low employment rates and high unemployment rates. A problem in this respect is the strict Belgian "study-first-work-later" model, which leads to many young people entering the labour market relatively late without being prepared for the realities of the labour market. Small hours jobs are restricted by the requirement that they be at least one third of a full time job in terms of hours worked. *To boost the supply of small hours jobs and thus facilitate school leavers' transition into the labour market, such minimum restrictions should be abolished*. There is a special holiday exemption for social security charges, which is mostly superfluous as low-income workers are already exempt, and it could be abolished.

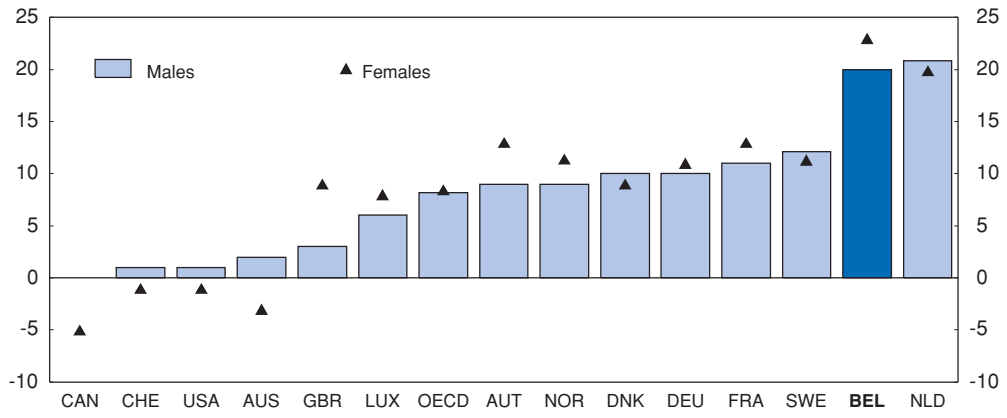
Labour market entry for early school leavers and those not pursuing further studies is also hampered by high minimum wages, which reduce demand for low-skilled workers. The statutory minimum wage as a per cent of the median wage is among the highest in the OECD and sectoral minimum wages are usually 20-30% higher. For younger people (below 21 years) there is a phase-in, allowing some alignment with their lower productivity, but an increasing number of sector wage agreements have abolished phase-ins. In addition, the phase-in is relatively steep. The implication is that young labour market entrants need to have a high level of productivity from day one – which is difficult given the few possibilities for combining studies and small hour jobs. *To better align young people's wages with their productivity, sectoral minimum wages should be reduced to the legal minimum wage and, there should be a more gradual phase-out of the youth minimum wage. Alternatively (sectoral) entry wages should be introduced, which should only be applicable to workers (re-)entering employment*. Such a reform should be combined with measures to strengthen search incentives in the system of special unemployment benefit for young school leavers (the so-called "waiting allowance"), which is available for an indefinite period. Such *benefits for school leavers should be restricted to those younger than 26 years* – a measure that would allow the least qualified relatively more time to solve their more difficult labour market integration. The government's recent introduction of a (in-)working bonus of EUR 10 net per month for low-skilled workers aims at increasing work incentives.

Special measures are required to address the unfavourable labour market outcomes for immigrants

Immigrants and their descendants have much lower employment and much higher unemployment rates than in other European countries, notably compared to native-born children (Figure 3). This may reflect discrimination, although there is little evidence that this is more pronounced in Belgium than in other OECD countries. The outcome can also partly be ascribed to relatively low educational attainment, particularly in terms of languages as immigrants are faced with two official languages: an example is Brussels, where immigrants usually learn French, but job possibilities are often in the surrounding Flanders. In this respect, making pre-school public child care mandatory is a step in the right direction. *Language teaching should be extended further to other age groups, particularly early language training of new arrivals, and be available for a sufficiently long time to secure adequate language skills.*

Figure 3. **Gaps in employment rates between the native-born children of immigrants and natives**

20-29 years old and not in education, latest available year



Source: OECD (2010), *Equal Opportunities?: The Labour Market Integration of the Children of Immigrants*.

StatLink http://dx.doi.org/10.1787/888932459071

The poor educational attainment reflects immigrants' educational profile upon arrival and that their descendants in the Belgian early steering process end up in non-academic vocational studies, which are often not well regarded on the labour market and from which it is difficult to pursue additional studies. For the descendants of low-skilled immigrants, the situation is compounded by insufficient additional educational resources to schools with large immigrant populations. *Thus, streaming should be postponed as far as possible and the possibilities for returning to a higher track should be improved. Moreover, the allocation mechanism of additional educational resources to correct for socio-economic backgrounds should include a more significant element reflecting student's immigration backgrounds. More generally, there is a need to improve vocational training to better reflect labour market demands.* Because of the low qualifications of many immigrants and their descendants, this group of labour market outsiders will benefit in particular from more flexible labour markets generally,

making all other recommendations to enhance the inclusion of outsiders particularly pertinent for immigrants (especially those related to minimum wages).

The wage determination system has delivered too high wage increases

Over the past 15 years, wages have increased faster than in the main trading partners and faster than domestic productivity, leading to a gradual erosion of external competitiveness. Since the mid-1990s, wages have been governed *ex ante* by a wage norm that shadows expected nominal hourly wage developments in France, Germany and the Netherlands. *Ex post,* the automatic wage indexation passes higher-than-expected inflation into nominal wages. Such a system has the benefits of maintaining the purchasing power of employees. However, the system has not been able to prevent relatively high wage increases during periods of inflation spikes nor to preserve competitiveness by importing low wage inflation. There are increasing concerns about possible negative effects of wage indexation, particularly as a considerable part of the consumer price index (mostly services) is itself subject to automatic indexation. The government has already decided to change the indexation formula for gas and electricity contracts to assure less volatile energy prices. *However, in the context of an overall review of all indexation mechanisms, the automatic wage indexation system should be reformed. A first step could be to redefine the health index to exclude all energy components to remove the most common terms-of-trade shocks. Also all effects of increases in indirect taxation could be excluded. In parallel, there is a need for improving the price and tariff mechanisms in the energy markets, including stronger competition enforcement. In the medium term, it would be advisable that the social partners consider phasing out the wage indexation system, so as to allow greater real wage flexibility.* By linking Belgian wage developments *ex ante* to those in the neighbouring countries, wages are to a large extent linked to foreign productivity developments. As domestic productivity developments have been weaker, this accounts for nearly half of the loss in external competitiveness. *Such losses could be prevented by basing wage developments on Belgian productivity developments.*

The highly co-ordinated wage determination system has also contributed to a compact wage structure, limiting the scope for outsiders to price themselves into employment. Currently, firms can diverge from the sectoral wage agreement through opt-out clauses, which are subject to industry committee approvals, and rarely used all-in agreements that include (expected) price inflation. *The possibilities for aligning wage developments with local labour market conditions should be enhanced by making opt-out clauses and all-in agreements only subject to approval by employers and employees of the involved firm.*

Other large pockets of under-utilised labour resources should be mobilised to counter the ageing of the labour force

Efforts are required to boost the low employment rate. A general problem in this respect is the high effective marginal tax rates which, as discussed in the previous *Survey,* can only be addressed through broad reform to the tax and benefit system. Also more flexible wage setting would certainly be an important contributor to boosting employment rates, but special attention is required to mobilise other rather large pockets of under-utilised labour resources. The relatively low female participation rate is set to increase over the coming

decades due to a strong cohort effect. Nevertheless, *the high effective marginal tax rates faced by low-income females can be reduced by completing the tax separation of spouses* as discussed in the previous *Survey*. Most of the increase in the effective retirement age can be explained by females staying longer on the labour market. Nevertheless, the effective retirement age remains among the lowest in the OECD, which means that, together with the gains in life expectancy, the currently retiring generations have the longest non-working life in Belgian history.

Increasing the effective retirement age is a priority and requires a broad-based approach. As stressed in the 2007 *Survey*, remaining exit routes to early retirement should be closed. Measures in this respect should focus on *increasing the enrolment age in such early retirement programmes and replace sectoral exemptions, such as allowing earlier entry for workers in the steel and construction sectors, with individual assessments of work capacity*. Furthermore, it should become economically more beneficial to remain in the labour market, *pointing to a need for increasing the taxation of pensions to the same level as is applied to similar income from other sources*. In addition, alternative exit routes should be eliminated. *Older workers on unemployment benefit should be subject to the standard search obligations applicable to other unemployed without exemptions and all employer-provided top-ups should be taxed similarly to other work-related income. In addition, a differential in the accumulation of pension entitlements between unemployed and employed should be introduced*. The 2005 Intergenerational Solidarity Pact contains provisions for longer careers to secure a full pension as the increase in the effective retirement age falls short of expectations. The effectiveness of this strategy will depend on introducing measures to improve labour demand for older workers, such as ensuring that their wages and productivity are aligned. Also a relatively large share of the working age population is receiving disability benefits, which in part functions as an open-ended passive income support system as enrolled recipients are rarely re-tested. *Reform of the disability system should focus on assessing partial disability with a link to benefits that ensures that work pays for the partially disabled*. Finally, pension reform could include an increase in *the legal retirement age, as is happening in many other OECD countries, to reflect past gains in life expectancy, and thereafter link it to further gains in longevity*. Such a measure is likely to further increase the effective retirement age as it raises the private costs of early retirement.

Environmental policies and measures need to be better co-ordinated

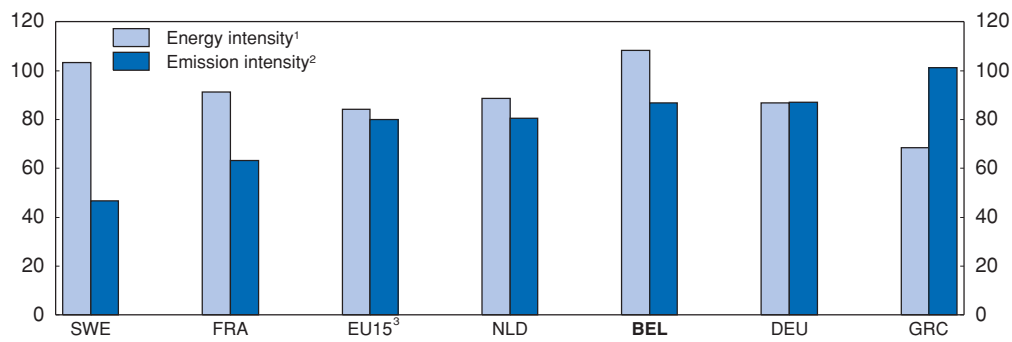
Belgian environmental policy has the complex division of powers and responsibilities. The three regions have major responsibilities for environmental policy and related areas, such as transport, agriculture and energy. But the federal government has the main responsibility for tax policies, often one of the most effective measures to pursue environmental objectives, for example by securing that polluters pay for the marginal external damage of their pollution. The dispersion of responsibilities has led to the creation of a large number of co-ordination and consultation bodies. This imposes a higher overall cost of environmental measures on the economy, as illustrated by different abatement costs across regions. *The economic rationale in environmental policy formulation should be strengthened by evaluating the costs of the current set-up in terms of lack of co-ordination and harmonisation of policies, and the cost-efficiency of policy boundaries and measures in place*. This recommendation applies particularly to policies devoted to green house gas emission and water management, as outlined below.

Additional measures are required to further improve environmental outcomes

Environmental outcomes have improved over the past decade. Belgium is likely to meet its Kyoto objectives, partly because of the recession, and progress in water quality is visible. Nevertheless, there is still considerable room and need to implement cost-efficient environmental policies, particularly as environmental objectives are becoming stricter, as in the European 20/20/20 strategy. In addition, Belgium is an energy intensive economy, partly reflecting a relatively high share of energy-intensive industries, but also because the energy use in transport and heating of residential and non-residential buildings is higher than in many other OECD countries (Figure 4). The outcome is related to an internationally low reliance on environmentally related taxes. Moreover, emission intensity is set to increase with the planned phasing out of nuclear energy, which currently accounts for about a half of all electricity generation. The increase in emissions will need to be offset by reductions elsewhere in the EU, as electricity generation is covered by the EU's cap-and-trade Emission Trading Scheme (ETS).

Figure 4. **The economy is energy and emission intensive in a European perspective**

OECD = 100, average of levels between 2003 and 2008



1. Total primary energy supply expressed in tons of CO_2 equivalent divided by GDP in 2000 USD using PPPs.
2. GHG emissions (excluding land-use, land-use change and forestry) in thousand tons of CO_2 equivalent divided by GDP in 2000 USD using PPPs.
3. Unweighted average of 2003-2008 levels.

Source: OECD World Energy Balances Database and *United Framework Convention on Climate Change Database.*

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A carbon tax is an effective low-cost measure to curb emissions

A two-tier approach is necessary to curb emissions. The EU emission trading scheme is the main instrument to curb emissions in energy generation and industry, ensuring that the cost of emissions is equalised across the participating countries. Another approach is needed to curb emissions from activities outside the EU emission trading scheme, such as transport, small industry, heating of housing and non-residential buildings. Current measures in these sectors reflect the (regional) division of powers in energy and environmental policies and are at times internally conflicting. Consequently, the implicit price of CO_2 emissions differs between various measures (and from that in the EU emission

trading scheme). A more efficient approach is to *introduce a uniform CO_2 tax for the non-ETS sectors (primarily transport and housing)*. Such a measure could adversely affect income distribution, which might then be addressed in the tax benefit system. The combination of specific measures in housing and transport does not lead to cost-efficient policies. Energy saving measures in housing have not reduced emissions as federal and regional subsidies to improve thermal efficiency of buildings have low take-up due to conflicting incentives, poor awareness and low prices of energy. *Thermal efficiency measures should be streamlined and geared to low-income households, which otherwise may not be able to react to the price signals embodied in a uniform CO_2 tax*. In addition, a significant number of households are entitled to low energy prices ("social tariffs"), shielding them from energy-saving incentives. *Such social energy tariffs should be replaced by income support*.

Emissions from the transport sector have been increasing. The effects of measures to promote less polluting vehicles, such as tax rebates for purchasing low-emission vehicles, have been offset by low fuel taxation and tax measures to promote company cars and commuting. In addition, the relatively low taxation of diesel has led to a diesel-heavy fuel mix, aggravating air quality problems in larger cities – particularly in Brussels. In this regard, the government's 2010 decisions to increase excise tax on diesel and relate the fiscal deduction of company car costs to emissions are welcome. Nevertheless, more substantial measures will be necessary to contain the negative externalities from transport. *Fuel taxation, particularly of diesel, should be increased further to better reflect negative externalities. Moreover, the recent agreement among regions to introduce road pricing for freight should be extended first to company cars and later to all cars, while charges should be set to reflect the negative externalities of transport. Congestion charges should be introduced to improve air quality in larger cities. Commuting allowances, particularly for road transport, should focus on low-income workers that otherwise would be at risk of dropping out of the labour market. Emissions associated with commuting can be reduced by introducing measures to increase the attractiveness and demand-responsiveness of public transport by introducing more competitive forces, such as more use of competitive public tendering*.

Renewable energy policies should exploit economies of scale and scope

Important pillars of Belgium's climate change strategy are to boost renewables from just over 4% of energy sources to 13% in 2020 and to increase energy efficiency. Renewables are promoted through numerous measures at various levels of governments: subsidies to windmills, photovoltaic and biomass (mainly imported from overseas), guaranteed prices, and complex systems of green certificates. There are five separate and incompatible green certificate markets (a federal and four regional ones, as there are two in Flanders) although there has recently been harmonisation efforts to combine markets in Brussels and Wallonia. Consequently, each government sets its own objectives and chooses different tools to attain them, often with the aim of picking a winning technology. This means that CO_2 abatement costs differ between regions and among technologies, implying that renewable energy policies are not exploiting economies of scale and scope, thereby increasing the overall costs of achieving renewable energy targets. *To equalise and lower abatement costs, recent market harmonisation efforts should be expanded to create as large and deep market as possible. Ideally, renewable energy policies should be based on a single country-wide green certificate market, which with the additional incentives coming from carbon taxes and the European emission trading scheme, would make the numerous subsidies and guaranteed prices superfluous*.

Water quality is still below European standards

A decade ago, water quality was among the poorest in the European Union, but it has since improved significantly due to extensive investment in water treatment plants, particularly in Brussels. Nonetheless, a considerable number of agglomerations continue to have insufficient water treatment in place and Belgium was yet again found to be in breach of the EU urban wastewater treatment directive in 2010. The unsatisfactory situation reflects the problems of co-ordinating definitions, monitoring and measures among the regions and the fact that the two main river basins do not follow regional borders. *Water policies could be better integrated by establishing water authorities at either the river-basin or the national level*. Further complications arise from water provision and sanitation being the responsibility of the municipalities. As a result, numerous different pricing schemes are in place and they often neither cover costs nor have prices related to pollution intensity. To provide incentives for private investors to address the persistent treatment problems, *water users should be charged according to the marginal externality they impose. New entry should be encouraged via public tendering of contracts*. A particular problem is the preferential treatment of the intensive agriculture sector which is the source of pollution from animal husbandry, pesticides and synthetic fertilisers. The impact on water pollution should be curbed *through taxation or by merging the regional manure management systems into a national system with tradable manure rights. This could take the form of a farm-level balancing scheme for nutrient content, which would limit the damage from manure spreading and limit the use of synthetic fertiliser. Pollution from pesticides should be limited through a pesticide tax based on the pollution content and tighter regulatory measures limiting their use*.

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Chapter 1

Bringing public finances to a sustainable path

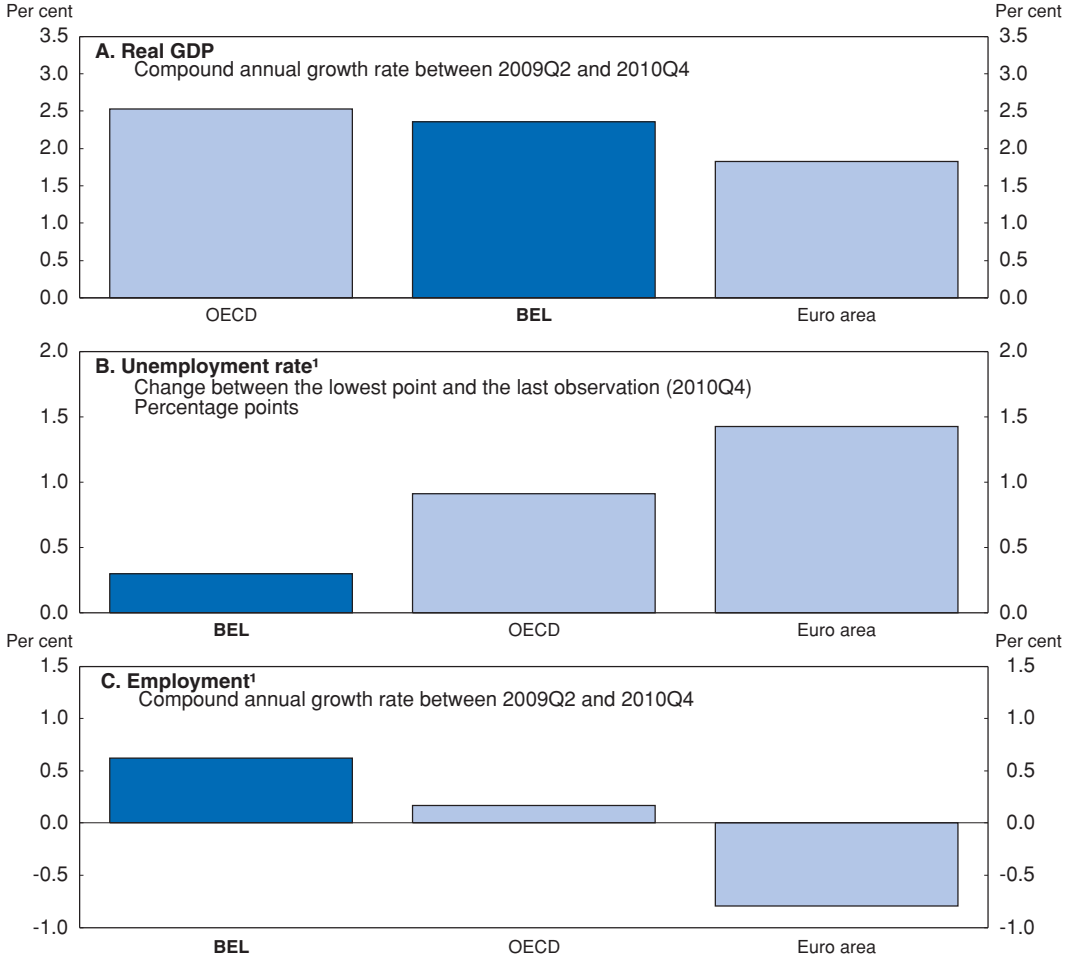
Economic growth is projected to be strengthening from mid-2011 onwards, but will be insufficient to restore the sustainability of public finances. The Belgian strategy to prefund ageing costs by generating fiscal surpluses to bring down public debt was derailed by the global crisis. Restoring the strategy is a priority, especially as spreads on Belgian debt have increased. This will require cuts in public spending, improving efficiency of policies, containing the growth of ageing-related costs and making the tax system more conducive to growth. While past experiences, such as in the 1990s, have shown that successful large consolidations are feasible, the task seems even more difficult this time as potential growth will be muted and interest rates are likely to increase. In this context, a credible fiscal consolidation plan requires the participation of all governments. Its effectiveness can be strengthened by improving the fiscal framework, in particular by introducing multi-year budgets, annual expenditure rules consistent with long-term targets and an enhanced role of an independent fiscal policy watchdog.

The recovery is gathering pace, but will be insufficient to restore fiscal sustainability

Belgium has weathered the global crisis relatively well with a smaller rise in unemployment than the OECD average and an economic recovery that is somewhat stronger than in the euro area (Figure 1.1). The main growth driver is exports, which benefit from the acceleration in world trade, notably the dynamism of Belgium's main trading partner, Germany. The dynamic growth in early 2011 softened subsequently due to higher oil prices and some disruption to the supply chains in the automotive industry. The

Figure 1.1. **The recovery is relatively strong by European standards**

Period 2009Q2-2010Q4



1. For Mexico the last available observation is 2010Q3.

Source: OECD, *OECD Economic Outlook Database*.

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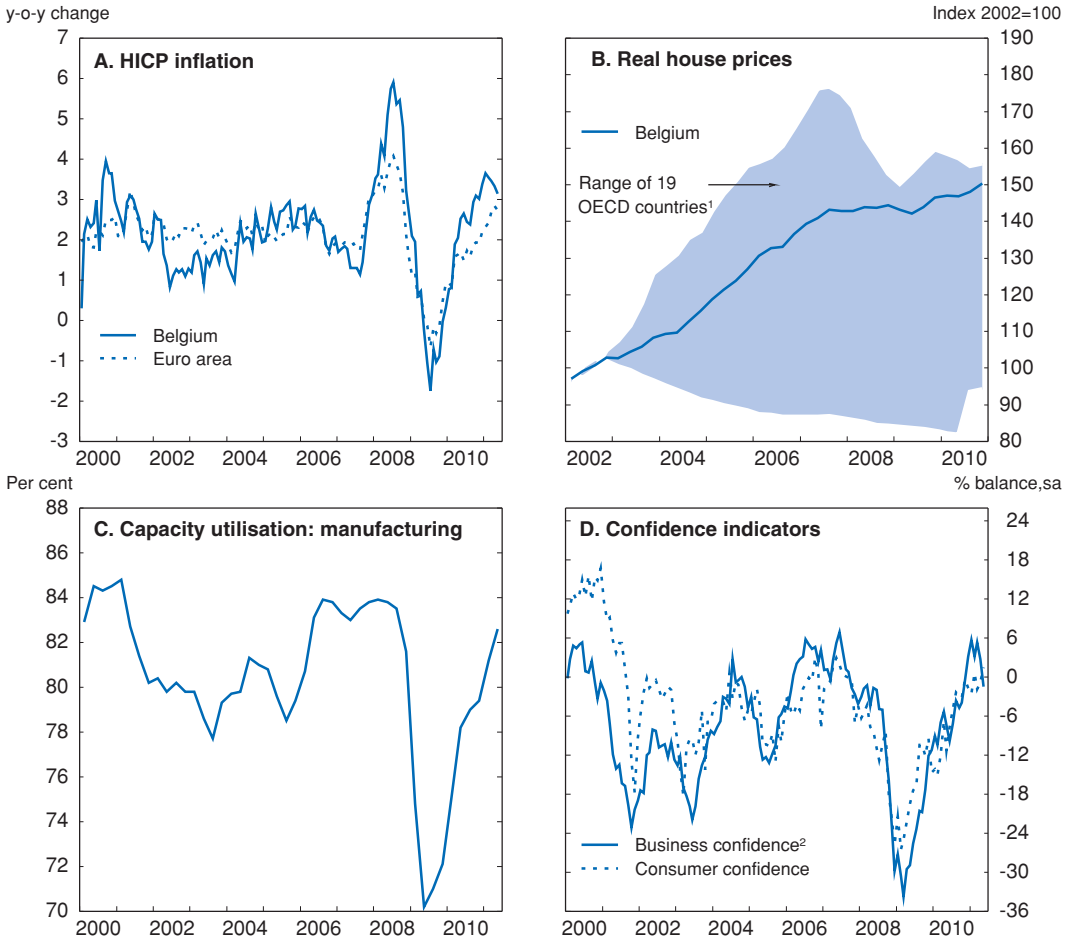
contribution from consumption has firmed up since the end of the crisis, reflecting the strength of the labour market and a fall in the private savings rate, and, unlike in many other countries, the absence of a housing market collapse. Business investment is also slowly expanding again as capacity utilisation is returning towards its historical trend (Figure 1.2). Since early 2010, employment has expanded at an average rate of around 1% per quarter (saar) – a pace that is held back by the ongoing reversal of labour hoarding during the crisis (aided by the intensive use of reduced working time schemes – which is discussed in more detail in Chapter 2). On the other hand, unemployment continued to increase until mid-2010 to a harmonised rate of 8½ per cent, before coming down by about ¾ percentage point by spring 2011.

Figure 1.2. **Macroeconomic indicators**



1. Includes Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy (up to 2010Q3), Japan (up to 2010Q3), Korea, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom and United States.
2. Manufacturing industry.

Source: OECD, *OECD Economic Outlook* and *Main Economic Indicators Databases*.

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Inflation has accelerated from one of the lowest to one of the highest in the euro area, standing at 3½ per cent in early 2011, reflecting a relatively strong (due to the comparatively high energy consumption in Belgium) and fast pass-through of energy

prices. There has also been a pick-up in underlying inflation, more rapid than in on average in the eurozone, to nearly 2% in spring 2011 – almost twice the rate a year earlier. This reflects automatic wage indexation that secures that wages (as well as transfers and a number of service prices) develop in line with the health index (*i.e.* the Consumer Price Index less transport fuels, tobacco and alcohol items). The trigger mechanism, which is part of the automatic wage indexation and covers civil servants and about 40% of private employees, has led to automatic wage increases in the course of 2010 and 2011. Moreover, due to its design, the mechanism is likely to lead to wage increases at least until early 2012, leading to persistent inflation pressures. This means that despite the 2011-12 wage agreement stipulates zero real wage growth in 2011 and only 0.3% in 2012, nominal wages are likely to develop faster than in the main competing countries (France, Germany, and the Netherlands). Chapter 2 presents reform proposals that can counter such a deterioration of the external cost competitiveness of Belgian firms.

From mid-2011 onwards growth is expected to gather pace despite the dampening effect of fiscal consolidation and tighter monetary conditions on domestic demand (Table 1.1). The recovery will be supported by stronger private demand for investment goods as excess capacity disappears. Private consumption will be boosted by higher disposable income as employment continues to expand. This will also allow for a significant reduction in unemployment and the output gap. Stronger economic activity will also increase emissions, creating green growth challenges which are discussed in Chapter 3. The main downside risk is that additional negative terms-of-trade shocks further widen the inflation wedge *vis-à-vis* other European countries, translating into higher labour costs. On the upside, successful fiscal consolidation could boost consumer confidence, inducing a lower saving ratio.

Table 1.1. **Main indicators**[1]

	2007	2008	2009	2010	2011	2012
	Percentage changes, volume (2008 prices)					
GDP at market prices	2.8	0.8	–2.7	2.1	2.4	2.0
Private consumption	1.7	1.4	–0.2	1.6	2.0	1.9
Government consumption	2.1	2.5	0.4	1.1	1.4	0.5
Gross fixed capital formation	6.0	2.2	–5.0	–1.5	2.2	3.2
Stockbuilding[2]	0.1	0.0	–0.2	0.1	0.0	0.0
Total domestic demand	2.8	1.8	–1.3	0.9	1.9	1.8
Exports of goods and services	4.3	1.4	–11.4	10.6	6.9	6.2
Imports of goods and services	4.4	2.8	–10.9	8.4	6.9	6.1
Net exports[2]	0.1	–1.0	–0.5	1.8	0.3	0.2
Memorandum items						
Harmonised index of consumer prices	1.8	4.5	0.0	2.3	3.6	2.4
Unemployment rate	7.5	7.0	7.9	8.3	7.6	7.3
Household saving ratio, % of disposable income	11.3	11.9	13.4	12.2	11.2	11.0
General government financial balance, % of GDP	–0.4	–1.3	–6.0	–4.2	–3.6	–2.8
Current account balance, % of GDP	1.7	–1.8	0.3	1.3	1.0	1.2
Gross public debt (Maastricht), % of GDP	84.2	89.8	96.3	96.7	96.7	96.4
Compensation rate of the private sector	3.5	3.2	1.7	0.8	3.2	3.7

1. National accounts are based on official chain-linked data. This introduces a discrepancy in the identity between real demand components and GDP. For further details see *OECD Economic Outlook Sources and Methods* (*www.oecd.org/eco/sources-and-methods*).
2. Contributions to changes in real GDP (percentage of real GDP in previous year).

Source: OECD, *OECD Economic Outlook 89 Database*.

Over the next years, a relatively dynamic growth in nominal terms should help reduce the fiscal deficit. Already in 2010 a general government deficit of just above 4% of GDP was more than ½ percentage point better than expected, thanks to a positive growth surprise and slower growth of some expenditure items (mainly health care). For 2011, the caretaker government's budget stipulates fiscal tightening of about ½ per cent of GDP, reflecting a broad range of small measures. Combined with stronger economic growth, this should reduce the budget deficit to about 3½ per cent of GDP in 2011. If similar consolidation efforts are implemented the following years, the budget deficit should fall below 3% in 2012 and the medium-term objective of a small surplus by 2015 should be within reach, marking an important step towards securing fiscal sustainability. However, this can only be achieved through a concerted effort by all governments in the federation as discussed later in this chapter.

High levels of public debt boost the need for fiscal consolidation

The deterioration in public finances is relatively limited following the global crisis compared to other OECD countries. After a large but mostly cyclical increase in 2009, the 2010 deficit turned out at just above 4% of GDP. Moreover, the sustainability gap of public finances, as measured by the European Commission, remains similar to the EU average. Public debt to GDP increased by some 12½ percentage points between 2007 and 2010 – also less than in the OECD as a whole. Half of the increase was due to direct interventions to save the financial markets (Figure 1.3 and Box 1.1). However, since Belgium had a relatively high debt going into the crisis, public debt reached almost 97% of GDP in 2010. This, and the fact that Belgium has had a caretaker government since April 2010, has contributed to financial markets' concerns regarding fiscal sustainability, raising Belgian sovereign debt spreads (Figure 1 in A&R). The interest rate differential on long-term Belgian government bonds (*vis-à-vis* Germany) has increased to levels unseen since the introduction of the euro, topping 130 basis points on several occasions during 2009 and 2010, and has been at around 100 basis during the first part of 2011.

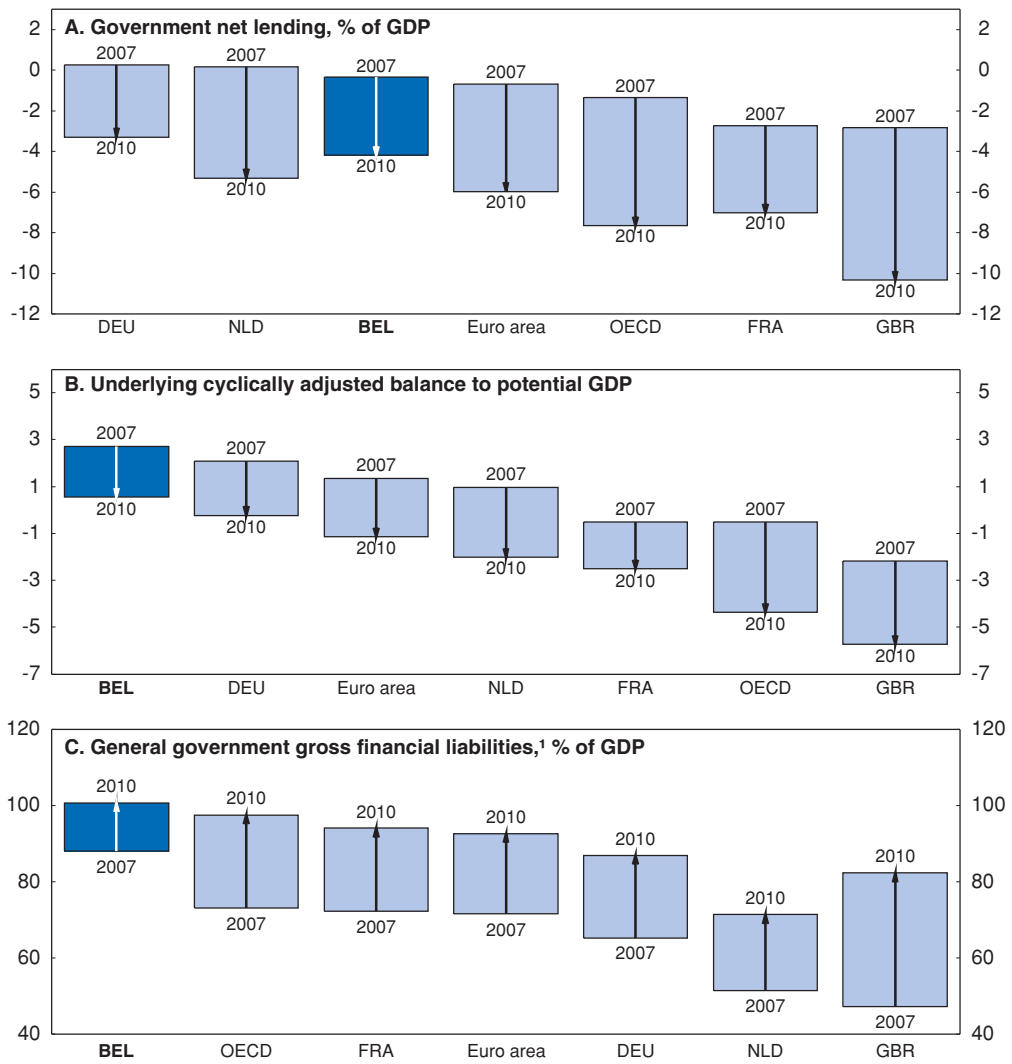
Pre-crisis plans to prepare public finances for ageing stipulated running down public debt by generating increasing surpluses over the coming decade or so. This strategy never fully materialised, as planned surpluses were postponed from one year to another (Figure 1.4). The global crisis has moved the debt-to-GDP ratio further away from the planned consolidation path: public debt was some 20 percentage points of GDP higher in 2010 than according to plans in the last Belgian pre-crisis Stability Programme (Figure 1.5). This situation calls for a renewed effort to reduce public debt and restore fiscal sustainability, notably in view of the rising ageing-related costs.

The recent medium-term strategy should bring public finances closer to sustainability

The most recent medium-term consolidation strategy is a step in the right direction. The consolidation strategy presented in the 2011 Stability Programme is an update of the strategy from the previous year, taking into account the High Council of Finance's recently recommended path to reach a small (0.2% of GDP) surplus by 2015. This requires almost 1% of GDP of structural tightening of the ageing-adjusted primary balance per year over 2011-15.[1] As at the same time ageing costs are assumed to grow by around 1 percentage point of GDP, structural measures to curb this growth could slightly reduce the need for measures on the ageing-adjusted primary balance (hence on taxes and expenditures not

Figure 1.3. **The effect of the crisis on public finances was lower than in most OECD countries**

Change between 2007 and 2010



1. OECD concept based on SNA rules.

Source: OECD, *OECD Economic Outlook Database* No. 89.

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Box 1.1. **State interventions in the financial sector and changes to the regulatory environment**

Belgian governments have spent some 6% of GDP in 2008-2009 in the form of capital injections to save the main players in the financial sector (OECD, 2009). As a result, the Belgian state is the largest single shareholder of a large international financial conglomerate BNP Paribas (which acquired most of Belgian Fortis Bank) with almost 11% of shares and 25% of former Fortis Bank Belgium. It holds almost 6% of Dexia (a similar amount is held jointly by the three regions), while the state and the Flemish region effectively have a 8.5% equity stake in KBC (non-voting) and Belgium, Flanders and Wallonia

Box 1.1. **State interventions in the financial sector and changes to the regulatory environment** *(cont.)*

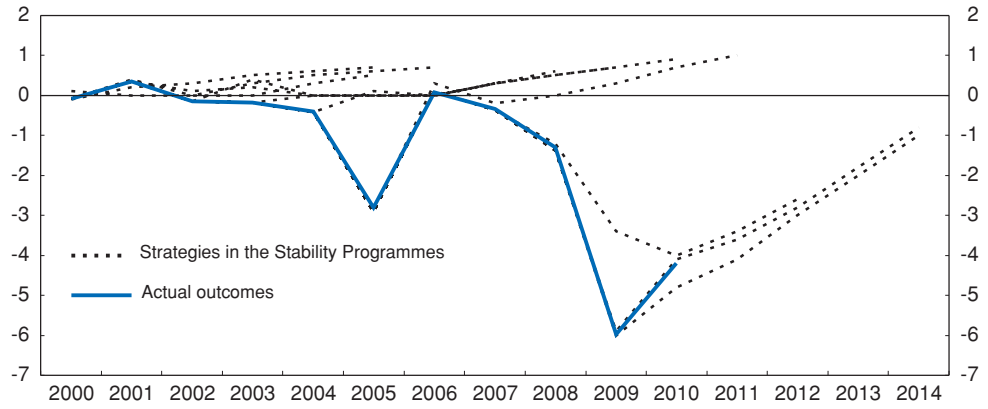
each have a quarter stake in the insurance company Ethias. In the coming years, the yield on the capital injections is assumed to exceed the interest on government bonds; hence presumed to have a small positive effect on the government budget. The stakes in KBC have explicit exit strategies built in and the loan guarantees will expire automatically. The federal government also issued guarantees on loans and assets amounting to about a fifth of GDP, of which more than half have already expired. The government measures have saved the banking system from collapsing but, contrary to the developments in some OECD countries (such as the Netherlands), no pay back of interventions took place till end 2010. The only exception is the EUR 5.5 billion loan paid back by Fortis already in 2009.

Balance sheets of the main Belgian banks have been improving markedly, as reflected in the rebuilding of core capital ratios and some tendency towards concentrating on core business activities, partly due to European Commission's requirements. According to the National Bank of Belgium, Belgian banks' exposure to sovereign risk in the EU periphery (mainly Spain and Portugal) was rather limited – constituting below 3% of GDP or 1% of banks' assets (NBB, 2011). Total exposure to the region (including also claims on banking and private non-banking sector) amounts to some 20% of GDP (Spain, Ireland and Portugal), with similar exposure to Central Europe (Czech Republic, Hungary and Poland). In 2010 the large insurance sector, has halved its total exposure to the euro periphery to about 6% of covering assets (below 4% of GDP). KBC has about 5% of GDP of loan exposure through its Irish subsidiary (8% of total assets under management). On the other hand, indirect exposure to the euro area periphery is somewhat higher as for Dexia group the exposure of the non-Belgian subsidiaries of financial groups is not covered by the consolidated Belgian financial sector statistics.

In June 2010, the caretaker government passed a law on financial crisis management, which became effective in 2011. The law introduced crisis-resolution mechanisms for systemically important financial institutions, including sketching out the principles for a state takeover. In July another law laid the foundation for the moving and concentrating of supervisory and regulatory tasks in the National Bank, and strengthening the role of the ex-CBFA (Commission for Banking, Finance and Insurance) – now called the FMSA (Financial Services and Markets Authority) in areas of consumer protection, product and market surveillance.

Figure 1.4. **Prefunding strategies of the 2000s failed to materialise**

General government net lending, as a percentage of GDP



Source: OECD, *OECD Economic Outlook Database* and European Commission, "Belgian Stability Programmes".

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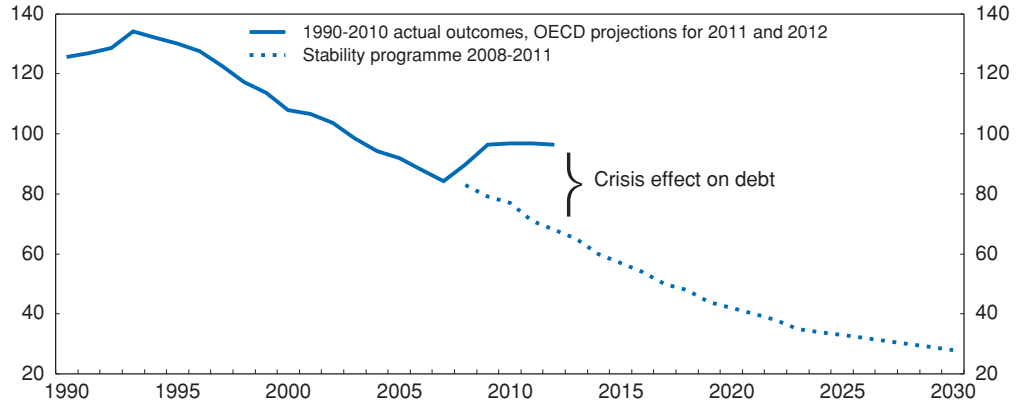
Figure 1.5. **Gross public debt**

As a percentage of GDP (Maastricht definition)



Source: OECD, *OECD Economic Outlook Database* No. 89 and Belgian Stability Programme for 2008-11.

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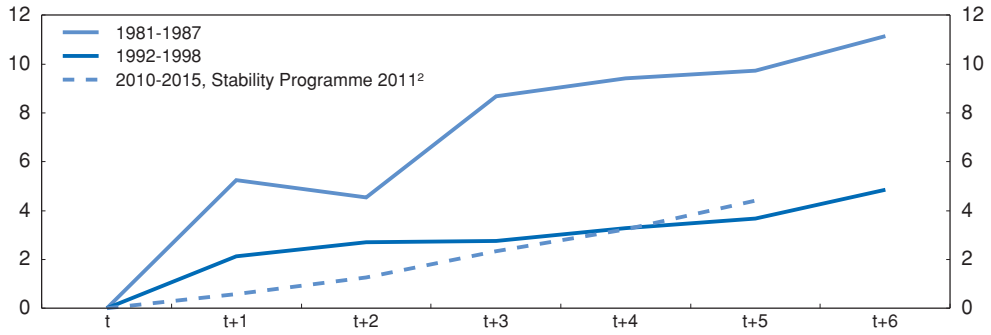
related to ageing). Significant structural improvements of Belgian public finances of such magnitude are not unprecedented as similar-sized fiscal consolidations were achieved in the 1980s and 1990s – in the shadow of an exchange rate crisis and then in the run-up to the euro introduction, respectively (Figure 1.6).

Implementing the medium-term strategy would bring public finances closer to a sustainable position, but further efforts are required. Achieving the small surplus in 2015 would bring the sustainability gap – the instantaneous improvement in the primary balance required to would restore the sustainability of public finances in the light of upcoming ageing costs (European Commission's S2 measure) – to around 1% of GDP, down

Figure 1.6. **Fiscal consolidations in Belgium – the past and the future**

Changes in primary balance relative to base year t[1]



1. Changes in cyclically adjusted primary balance (ageing adjusted in the projection scenario 2010-2015).
2. Ageing-adjusted cyclically balance improves from 0.9% of GDP in 2010 to 5.3% of GDP in 2015. This is based on Stability Programme (2011) and High Council of Finance (2011) path to reach a 0.2% of GDP surplus by 2015. The assumptions on cyclical adjustment are taken from the SP (2011). The adjustment for increases in ageing-related expenditure is based on the High Council of Finance (2010) where these costs are assumed to increase by 1.1% of GDP between 2009-15. This is assumed to be evenly distributed across 2009-15.

Source: OECD, *OECD Economic Outlook Database*, OECD calculations and High Council of Finance (March 2011), "Évaluation 2010 et trajectoires budgétaires pour le Programme de Stabilité 2011-2015" and *Annual Report* (June 2010), "Comité d'Étude sur le Vieillissement".

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from the current level of around 5% of GDP (and below the pre-crisis levels). Still, to close the gap, consolidation needs to be extended further. OECD simulations show that if the 2015 objective of a surplus of 0.2% of GDP is reached, it should be maintained for two decades to secure fiscal sustainability. In this theoretical scenario, savings resulting from falling interest payments (due to falling debt) cover a significant part of the rise in ageing costs, but further consolidation is still necessary. At the same time, the medium term Stability Programme's path is significantly more ambitious than the minimum debt-to-GDP reduction path implied by the recently proposed ECOFIN amendment to the Stability and Growth Pact. The latter requires high-debt countries to annually reduce their debt-to-GDP ratio by, on average, one-twentieth of the public debt in excess of 60% of GDP. For Belgium this would entail reaching and maintaining a deficit of roughly 1½ per cent of GDP in the medium-term (Annex 1.A2).

To be credible, the consolidation strategy must be backed with well-identified measures

No concrete measures to achieve the Stability Programme objectives beyond 2011 have yet been proposed. The 2010 budget outturn has been better than expected due to favourable cyclical developments, lower-than-expected healthcare expenditures and data revisions. In the first months of 2011, the absence of a federal budget induced some automatic savings as budgeting was done on the basis of previous year's budget, with inflation adjustment. Given the political gridlock, the caretaker government eventually decided to present a 2011 budget proposal in March. The budget targets a 3.6% of GDP deficit, which is likely to stabilise debt to GDP. The expected outcome is partly based on an improved cyclical situation, as the care-taker government did not propose significant structural measures.

Specifying and legislating concrete structural measures to implement the strategy would help calm the sovereign-debt related tensions in financial markets. Overall, the effect on the risk premium is partly offset by the still exceptionally low global interest rates, securing long-term interest rates of just over 4% in early 2011. Nevertheless, while the financing of a large part of the debt that needed to be placed on the market in 2011 (almost 20% of GDP) has already been secured, Belgium faces similar needs in 2012 and is hence vulnerable to market sentiment. For example, a 100 basis point premium would be translated into additional annual interest payments of some 0.2% of 2011 GDP over the entire term of the newly issued debt. Some additional costs may come from the fact that about a fifth of the debt stock is financed at variable rates. As global interest rates increase, the costs of servicing debt will follow, unless contained by a lowering of the premium. Hence, proposing and implementing credible measures to achieve fiscal sustainability, together with increasing the credibility of such a commitment by improvements in the fiscal framework, should yield tangible savings and reinforce the consolidation strategy. Moreover, in the context of financial market volatility, the government should consider the planned consolidation path as a minimum requirement. Importantly, such measures should be structural, in particular as some of the saving measures taken over the recent years are not sustainable in the longer term – for example the tax on extending the life of nuclear power plants (yielding about 0.1% of GDP per year) will eventually be exhausted (Chapter 3).

Spending cuts and efficiency improvements are necessary

A key consolidation measure should be to improve the cost-efficiency of public service provision. Since 1995, public employment has expanded by an average of 1% per year (Laloy, 2010), faster than in most OECD countries, and maintaining the share of public employment to total employment at just over 18%. Moreover, public employees also enjoyed large wage increases. As a result, public sector wages cost about 13% of GDP, as much as in the early 1980s, when the government was running double-digit deficits. Particularly fast growth of salaries has occurred at the regional and especially local government level where real wage growth has been twice as fast as at the federal level. The fastest growth of employment occurred in the administration of regions, communities and local municipalities (Table 1.2). Nevertheless, despite that the devolution process has limited federal responsibilities, employment in federal administration grew as fast as in the total economy, partly due to the discretionary policies in the health sector and law and order. Hence, a thorough cost-efficiency review of public administration would aid long-term consolidation efforts. The retirement of about one third of federal civil servants in the coming decade is an opportunity to introduce savings. In this light, the federal administration is already pursuing a programme of selective replacement of retiring civil servants.

Table 1.2. **Public administration has been growing at all levels of government**

Evolution of employment in Belgium (1995-2009)

Sector	Total employment	
	Level	Average annual growth
	2009 (thousands)	1995-2009 (per cent)
Total economy	4 436	1.0
Public domain (2008)[1]	1 299	1.7
Public sector	828	0.9
	Entity I	
Federal government	139	0.0
of which: Administration	99	1.0
Social security	30	1.2
	Entity II	
Communities and regions	365	0.8
of which:		
Administration	57	1.9
Education	276	0.5
Local governments	294	1.6
of which:		
Administration	205	1.6
Education	68	1.8

1. Public domain includes items like healthcare services provided by the private sector but funded by the state.
Source: Laloy (2010), "*Structure et évolution de l'emploi public belge*", *FPB Working Paper* 19-10.

Taxation should rely on broader bases and be more conducive to growth

Belgium has one of the highest tax burdens in the OECD and the tax system is highly distortive, particularly with respect to taxation of labour (Høj, 2009). Thus, measures that increase net revenues run a risk of adverse effects on potential growth. Moreover, one

effect of the crisis is that the ratio of public expenditure to GDP increased by several percentage points to levels unseen since the early 1990s. Part of the increase is cyclical and will eventually disappear as the economy recovers; nevertheless sizeable cuts are necessary if the ratio is to return to its pre-crisis levels. Moreover, spending cuts are generally regarded as more durable, hence are likely to reinforce the credibility of the retrenchment plans (OECD, 2010).

There is considerable scope for reforming the tax system to make it more supportive for growth and employment. Reforms should focus on base broadening and a shift to less growth-distorting taxes, as discussed in the previous *Survey* (OECD, 2009). Broadening of tax bases would allow for the high marginal rates to be reduced and to make the tax system more neutral. Structural relief and tax expenditures are used on a wide scale to shield particular groups and activities from the high tax rates, but are rather poorly targeted and contribute to higher general tax rates (Høj, 2009). A number of the measures are not very efficient, such as the tax exemption of savings accounts and the crisis-related VAT reduction on hotels and restaurants and some construction activities. These should be withdrawn as soon as possible given that they will have no significant positive long-term effect on economic activity,[2] tend to benefit higher income households, and imply that taxation needs to be higher in other areas.

The overall high taxation of labour and rigid labour market contribute to elevated labour costs and a reduced labour supply (Chapter 2). Given the largely distortive nature of labour taxation (OECD, 2008) it would be desirable to shift the burden to other less distortive taxes. OECD research indicates that growth could benefit from a shift towards consumption and property taxes: for instance, value added taxes could be increased. Property taxation revenues are not particularly low by OECD standards but could be increased further, though at the same time the high property sales taxes should come down.[3] Finally, environmental taxes are low by international standards (particularly taxes on energy) and more reliance on such taxes would provide a double dividend of generating revenues and greening the Belgian economy (Chapter 3).

Reform of social security is the key to controlling ageing-related cost increases

Most of the spending increases associated with population ageing fall under the responsibility of the social security system.[4] Containing growth in such spending is a major challenge. Public healthcare expenditures are already relatively high compared with a number of European countries (Box 1.2) despite administrative costs that are comparable with neighbouring countries (Joumard, Andre and Nicq, 2010). The High Council of Finance expects public healthcare costs to grow from 8.1% to 11.7% of GDP by 2060, with particularly high growth in long-term care expenses (HCF, 2010). The expected increase is relatively frontloaded, as a quarter of it will materialise over the next 5 years. In the current set-up, healthcare spending is capped, but the ceiling grows by 4.5% in real terms per year. The cap is hence not binding and does not encourage spending efficiency (Box 1.2).

Significant savings could be achieved in pension payouts. By 2060 the costs of pensions are expected to increase from 9.7% to over 14.4% of GDP (HCF, 2010, EC, 2009). While the gross replacement rate of the Belgian state pensions is low in comparison to other OECD countries, the preferential tax treatment of pension income brings the net replacement rate to around the average (OECD, 2011). Moreover, pension rights are computed relatively generously, as unemployment spells and a number of other periods of

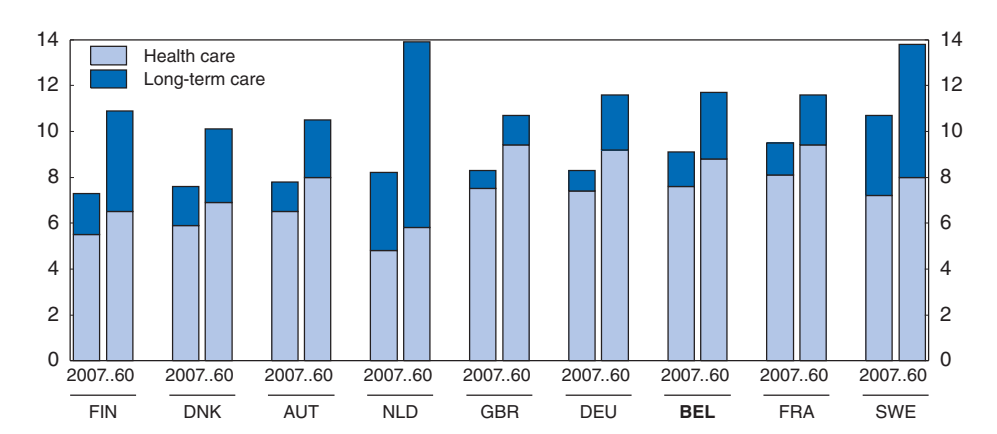
non-work count towards pension rights. On the other hand, the required career length is 45 years. Overall, there may be some room for reducing pension costs. The most promising avenue would be reforms that address work incentives. Encouraging people to extend their working life would increase overall employment thereby raising revenue, and reducing transfers (as the pension system is not actuarially neutral). Low labour utilisation indicates large potential gains, although it is unlikely to improve the budgetary position substantially rapidly. For example, if the consolidation plan 2011-15 was to be realised through savings arising from job creation, it would require creating 150 000 private sector jobs per year, roughly three times the average employment creation of the 2000s.[5] Chapter 2 proposes reforms aimed at increasing the internationally-low employment and extending the relatively short working life.

Box 1.2. **Spending in the health care sector is rising rapidly**

Public healthcare and long term care spending is higher than most EU countries (Figure 1.7). Total spending on healthcare (not including long-term care) is capped by law – since 2004 the maximum budget grows 4.5% in real terms per year. In the past, actual spending was not growing as fast as the cap, allowing over the period 2007-09 for a catch-up effect with spending increasing faster than the cap (6% annually in real terms). By 2009, healthcare spending had reached 96% of the maximum budget envelope. The rule permits relatively rapid increases in the cap, which may in itself create spending pressures and at some point in time will have to be lowered. Under the current law the budget ceiling would surpass 25% of GDP in 2060.

Figure 1.7. **Health and long-term care expenditures are high and set to rise further**

Public spending, as a percentage of GDP



Source: European Commission, *Sustainability Report 2009*.

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Spending control should be improved

Reform of the social security system can yield potentially large savings and help to improve labour market incentives. Currently, the social security system is composed of three regimes: employees, self-employed and civil servants (Annex 1.A3). The system traditionally includes earnings-linked benefits (such as unemployment benefits, pensions, disability, work-place accidents and professional diseases) and universal coverage items such as healthcare. Over time, the system has been shifting from the concept of an insurance system to an increasingly redistributive system without strengthening incentives for spending control in individual programmes (Box 1.3). The link between total benefits and contributions has been weakened by capping benefits and dropping the ceiling on contributions. It was further weakened when the separate contributions to individual funds were replaced with a single contribution – the latter facilitating the smooth transfer from surplus to deficit funds. A pension reform in 1996 did not remove the need for ensuring that social security reform sustainability is achieved at the overall level. The system's inability to finance itself has led to increasing transfers from the federal government (part of the transfers reflect universal coverage of some services, such as health care) (Figure 1.8). By 2010, about a third of the system's

Box 1.3. **Social security – insurance or redistribution?**

The Belgian social security system has evolved from a largely insurance-oriented system towards an increasingly redistributive system, predominantly due to the decoupling of benefits and contributions (arising from the capping of benefits and the removal of the ceilings on contributions) and due the dissolution of the link between contributions to individual funds (such as retirement, health, disability, unemployment, workplace accident and professional disease insurance) and the benefit payouts and the inclusion of universal coverage items, such as healthcare, not related to work status nor salaries.

Social protection for wage-earners and self-employed is, in principle, based on a social insurance logic. However, the main social insurance funds share a common financing mechanism with a single unified contribution, implying that *de facto* workers do not pay contributions for individual risks, such as disability and unemployment nor explicit pension contributions. The system is based on two main revenue pools – one for wage-earners and one for self-employed. All revenues enter these common revenue pools, which are subsequently allocated to the various funds depending on the respective spending needs – so-called "global budget management".

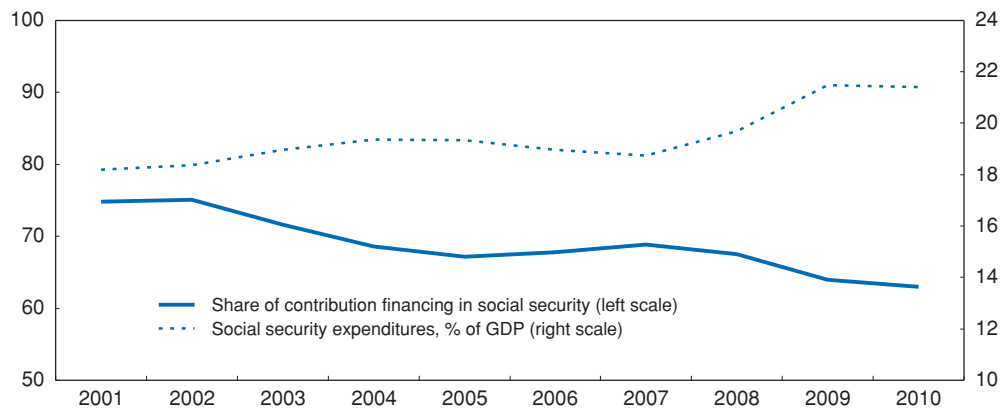
As contributions are insufficient to cover spending, they are complemented by budget transfers from the federal government. Since the 1990s, earmarking of (federal) tax revenues plays an increasing role. A more recent development is the increasing use of discretionary *ad hoc* allocations to specific funds, in order to compensate the effect of targeted and general reductions of social insurance contributions for employers (for example the general reductions in the 2009-10 wage agreement cost the federal budget 1% of GDP) or to pay for extensions of benefits to categories of beneficiaries beyond the normal scope of the social insurance system (for instance health insurance coverage to non-contributors). Finally, some transfers simply have overall budget balancing aims.

Social protection of civil servants is predominantly financed via general revenues. Social protection for the needy is entirely general revenue financed – partly through the federal government revenue, and partly through local governments' social assistance budgets.

revenues come from the general budget in the form of direct subsidies and earmarked revenues (particularly the so-called alternative financing mechanism), amounting to more than 7% of GDP (Budget, 2010, and Figure 1.9). The federal government determines the parameters in consultations with the social partners. Looking ahead, population ageing means that spending on health and pensions are set to increase, implying higher federal transfers in the absence of reform.

Figure 1.8. **Spending of social security has been growing, while self-financing has been falling**

Per cent



Source: *Statistical Bulletin* of the National Bank of Belgium (2011).

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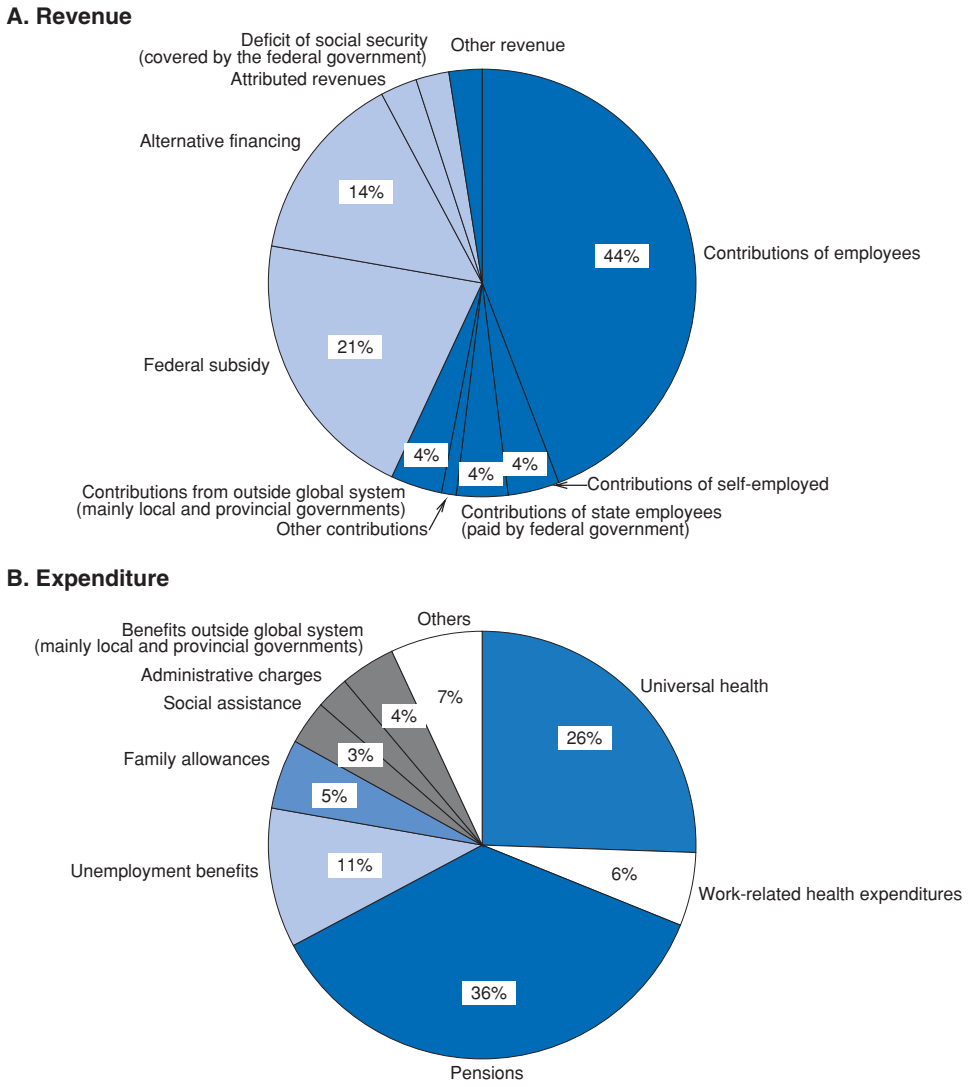
There is a need for a thorough evaluation of the effectiveness and efficiency of operations

A key strength of the system is that social protection has a wide reach with few people falling through the social protection net. This is reinforced by the operational importance of players such as mutual health insurance organisations, trade unions and local council social assistance centre with a strong presence at the local level – guaranteeing easy access to the system. However, the multi-layer and multi-pillar structure comes with relatively high administrative and management costs.[6] The strong involvement of social partners in the management and organisation of the system may also have contributed to a lack of focus on efficiency enhancing reforms. A notable example is the organisation of labour market activation. A central unemployment insurance fund (RVA-ONEM) is responsible for unemployment benefits, while regional public employment services are responsible for training and job placement, implying that if the latter is successful, then the financial benefits are accrued by the central fund. Moreover, most unemployed have to sign up with both their trade union and their regional employment office, as the regional employment office is in charge of job placement and the unions are the paying agents for the federal unemployment benefit from RVA-ONEM. Such a structure may have had advantages in terms of proximity, but is likely to lack in effectiveness and cost-efficiency.

Dynamic embedded incentives to pursue cost efficiency are not well-developed as the paying agencies operate on a not-for-profit basis and the payments for their services do not depend on the efficiency of operations. As a result of the unified contribution, there are no

Figure 1.9. **The breakdown of revenue and expenditure in social security**

Per cent, 2009



Source: Preliminary 2009 data from Budget 2010.

StatLink http://dx.doi.org/10.1787/888932459261

automatic feedback mechanisms to assure sustainability in the system. Specifically, no one is fully in charge of surveillance or policy-making with respect to the budgetary balance of the system, implying a lack of systematic alignment between benefits and contributions in response to changes in the socio-economic environment. The National Social Insurance Office (RSZ-ONSS), which is the central revenue collection and budget management agency, has no direct control over benefit levels and thus no direct means of influencing spending patterns in individual funds. The funds, in turn, are essentially specialised spending agencies with no responsibilities in terms of the revenue base or for long-term sustainability. They are simply in charge of benefit delivery – a fact further reinforced by the segmentation of social insurance into different regimes. This calls for a

need to evaluate the institutional landscape to identify areas, where the present setup is less than optimal and to ensure that funds are faced with a coherent set of economic incentives and budget constraints.

Social security should not discourage working

The design of the system encourages early retirement and discourages mobility, inhibiting optimal resource allocation. Large numbers of workers retire from the labour market through other programmes than the pension schemes – such as unemployment insurance, conventional early retirement and possibly disability insurance. The parametric design of pension schemes encourages such earlier withdrawal – for example, all periods spent on programmes such as unemployment or early-retirement are credited to the individual's earnings record as if he had continued to work at a wage corresponding to his last wage (in constant real terms) without being coupled with a (pension) contribution payment. In addition for higher income workers, the pension cap means that early retirement induces a pension entitlement loss below the actuarially neutral level. Belgium used to display the highest penalty to continued work across 12 OECD countries studied in Gruber and Wise (2004) for workers in the private sector. The introduction of a pension bonus for people working after 62 gave greater incentives for extending working life, in particular for lower income workers. On the other hand, civil servants enjoy relatively generous pension entitlements (reflecting that their pensions are calculated on the basis of the last five years of salary rather than as a career average) and the cap on contributions of the self-employed may distort labour mobility further.

The tax system can be made more growth conducive by shifting taxation from labour to less distortive taxes. This can be achieved by moving further towards tax-financing social security (i.e. reducing the reliance on social security contributions. Indeed, social security premiums contribute to high effective marginal tax rates, creating numerous labour market traps as described in the previous *Survey*. A first candidate to be financed via general taxation could be health care, reflecting its universal provisions and its complex governance, which means that most parametric reforms have originated from the federal government.

Universal services should be financed with general revenue

Health insurance with its universal coverage has an intrinsically weak link between contributions and benefits. Moreover, some of the complex governance issues in the health sector strengthen the case for direct tax financing (and hence spending control) by the federal government. The idea of general revenue financing is *de jure* partially recognised in the current social insurance system as a substantial share of the alternative financing of social insurance is earmarked to health insurance. *De facto*, the situation is less clear cut. A large share of these earmarked revenues is allocated to health insurance through a formula apportionment system – meaning that mechanical rather than system-specific needs drive the magnitude and trends of these transfers. Moreover, health insurance is part of the overall global budgetary management of the two revenue pools for wage earners and self-employed – meaning that any form of earmarked revenues for health insurance can and will easily be undone through lower transfers from the common revenue pools.[7]

The system's sustainability should be strengthened by encouraging endogenous reforms

As a big-bang approach of abolishing contributions and move to full tax-financing could prove politically difficult, a more piecemeal approach should be adopted. In which case, feedback mechanisms should be introduced in the area of earnings-linked benefits, such as pensions, disability, unemployment, professional disease and workplace accident insurance. In such programmes, explicitly and credibly linking contributions to benefits ensures that contributions become and are perceived as an insurance premium for the coverage against a risk rather than a tax. Such a reform would help to internalise the benefits of the associated programme and thus reduce the (tax) distortion of labour choices. Moreover, system dynamics and constraints become more apparent for members and employers. For example, in the face of shrinking working-age populations, an explicit link implies that social choices of pension generosity (and hence intra- and intergenerational transfers) become clearer. A pension fund's budget constraint ensures that any financing shortfall will be identified, projected and potentially absorbed by adequate policy measures on the benefit (pension cuts) or the contribution side (contribution hikes) or both (for instance increasing the retirement age), in the process enhancing the transparency as well as the fiscal and social sustainability of the system. Examples of such automatic feedback mechanisms in pension systems can be found in Germany and Sweden, among others.

Funds should also be granted an active role in managing the overall balance relating to their activities, subject to an explicit and binding budget constraint. In particular, there should be no scope for systematic or *ad hoc* expansions of revenues to meet additional spending needs. Ring-fencing the budget of funds thus works as a disciplining devices for politicians and fund managers (thus also the social partners), as they make costs and benefits of any policy measure explicit. For example, any reduction in revenues affecting a given fund, because of a discretionary policy measure (such as a targeted reduction for a specific group), would need to be explicitly and fully compensated by an associated benefit reduction or via offsetting revenue increases from other contributors. Such explicit mechanisms also give funds incentives to prepare for the future by building up reserves to meet future commitments as the short and long run cost of policy measures become measurable and predictable. Particularly in the case of a more piecemeal approach, one way to make such feedback mechanisms more automatic (for contribution financed funds) is to increase the degree of self-financing of social security, reducing federal transfers. At the same time, government goals of improving labour market prospects of groups such as low-income workers, can be pursued with targeted in-work subsidies.

Fiscal federalism reform should facilitate consolidation

The result of discussions on how Belgian federalism should be organised will ultimately affect the distribution of consolidation efforts across the governments in the federation. Since the June 2010 general election, the main issues in the coalition negotiations have been reform of the federal arrangement, focussing on the division of fiscal powers (giving sub-federal levels more responsibilities from the federal government and/or more autonomy, in particular in the area of taxation) and the organisation of the Brussels-Capital region and surroundings (financing and constituency issues). Any decisions taken on these points will inevitably, directly or indirectly, feed into how the organisation of fiscal federalism should contribute to securing fiscal sustainability.

Up until the crisis, the pre-funding strategy has had two pillars with different roles for the federal and sub-federal levels. The latter agreed to keep a balanced budget, while the federal level, responsible for most of the increase in ageing costs (mainly via social security), was to make room for (future) ageing costs by running down public debt. As a result of the crisis, the sustainability gap of public finances has grown to a magnitude which makes such a plan untenable in the absence of substantial tax increases. The ongoing decentralisation of powers and the relatively slow-growing federal revenue streams have reduced the ability of the federal government to cope the consolidation targets (Box 1.4), arguing for more consolidation in social security (see above) and at the sub-federal level.

Box 1.4. **Federal government has limited discretion to consolidate**

The federal government collects the majority of taxes, including some of the regional taxation. However, most of revenues are earmarked. Some 60% of tax revenues are attributed to other government bodies: the regions, communities, social security; and the EU. Another 15% of revenues are used for interest payments on public debt. As a consequence, the federal government's discretionary power is limited. Deducting attributed revenues and interest payments on debt from the 2010 budget leaves some 6½ per cent of GDP of revenues (Table 1.3). Adjusting for the cyclical effect may increase federal revenues another 1 to 1½ percentage point of GDP. In principle, the federal government can boost its revenues by simply increasing income or consumption taxes (or other taxation). This is due to the shared-revenue principle whereby the revenues transferred to the regions and communities are indexed with GDP growth (and some small demographic element in case of VAT), irrespective of the actual revenue collected. In practice however, this would be difficult given Belgium's high tax burden and complicated political situation. The federal government is also responsible for most tax expenditures, which are relatively widespread in Belgium.

Table 1.3. **Federal government primary spending**[1]

Based on 2010 budget, as a percentage of GDP

Revenue sources	Revenues	Attributed to				Sum of attributed
		Regions	Language-communities	Social security	Others (inc. EU)	
Personal income tax	10	2.8	1.9		0.4	5.1
Value added and related taxes	7.5		3.7	3.5	0.2	7.4
Corporate income tax	2.7					
Duties	0.5				0.5	0.5
Excise taxes	2			0.3		0.3
Regional taxes collected at the federal level	2	2				2
Withholding tax on capital income	0.7			0.1		0.1
Others	0.3					
Total	**25.7**	**4.8**	**5.6**	**4.1**	**1.1**	**15.6**
Debt servicing						3.3
Revenues less attributed expenditures and interest payments				**6.8**		
Expenditures less attributed expenditures and interest payments				**10.3**		

1. Numbers may not add up due to rounding errors. Attributions do not include items such as transfers to the national rail.

Source: Budget Memorandum 2010.

As agreed in 2010, the burden of fiscal consolidation in 2010-12 is to be shared between the federal level (responsible for two thirds of the planned adjustment) and the sub-federal levels (the rest). The sub-federal governments are to gradually reach budget balances. The latter is likely to be achieved in 2011 in the Flanders (region and language community), and by 2014 in the Walloon region and the French community as a whole. The Brussels-Capital region has declared it will not be able to adhere to the agreement without additional funding (according to the 2011 Stability Programme, it should reach a balance by 2016). If the burden sharing agreement of two-thirds of consolidation at the federal level, one third at the sub-federal, was to be prolonged to the medium term, achieving the 2015 targets would require a more significant effort from the sub-federal level. On current fiscal federalism arrangements achieving the planned small surplus would need an overall sub-federal surplus of 1% of GDP by 2015 (HCF, 2011).

There are several ways of reorganising fiscal federalism in light of fiscal sustainability. The two main options are either to provide the federal level with sufficient resources to finance ageing costs or to share the costs of ageing among different levels of government. Leaving more resources at the federal level can be done by reducing transfers (or their growth) from the federal level, or transferring spending responsibilities without the associated budgetary resources. Regarding the latter, the responsibility for financing pensions of the regional and community government employees, currently at the federal level, would be a possible candidate. Other solutions could entail splitting the costs of public debt interest payments – which would also have the benefit of making sub-federal levels more directly responsible for the costs of fiscal laxity or market sentiment. A number of policies may entail large scale economies or national equity considerations which may make them more attractive to be run at the federal level. Hence, in some cases, such as for instance public debt, it may be preferable to devolve financing (interest payments) while not the policy instrument itself (debt issuance). Such arrangements, in turn, may raise governance issues. Overall, whichever solution is eventually chosen, a number of principles for the devolution of powers should be taken into account, as described in the previous *Survey*:

- Strengthen the financial position of the federal level to provide room for servicing the upcoming costs of ageing (for instance by improving its revenues base), and/or shift some of the ageing burden costs to the regional level.
- Transfers between government levels should better reflect services provided – for instance by redesigning transfers between different governments (a workplace element of income taxes to compensate Brussels for the services it provides to other regions).[8]
- Improve the coherency of policies. In areas which are better dealt with at the regional level, the regions should be given the appropriate powers to execute them (such as taxing powers in the relevant areas) and should rely more on developing their own tax bases. In areas of national interest – where better results can be achieved at lower costs if policies are common or well co-ordinated across the country consider either moving powers to the federal level or, at the minimum, developing efficient co-ordination and co-operation mechanisms. In this light there should be an institutionalised periodic assessment of the efficiency and effectiveness of the division of powers.

An internal stability pact would improve the burden-sharing of fiscal targets

Changes in fiscal federalism and the fiscal framework should be accompanied by an internal stability pact among the governments. The pact should replace the set of *ad-hoc* agreements on consolidation efforts. It should outline in detail the pre-funding responsibilities, including pre-agreed automatic sanctioning mechanisms for governments that do not adhere to their commitments, but also stipulate recovery paths in case of slippage. Such issues will become even more important if EU reforms lead to direct sanctions for fiscal underperformance. The pact should be made operational in the budgeting process by establishing consistent paths for each government within a medium-term target and spending rules. Any deviation from the stability pact rules (such as the non-application of sanctions due to extraordinary circumstances) should only arise due to exceptional developments and require the explicit consent of all the government bodies. To reinforce the pact and its implementation into federal and sub-federal budgets, there is a need for strengthening the role of independent fiscal councils in Belgian fiscal policy making (see below).

A stronger fiscal framework requires spending rules, longer budget horizons...

Over recent years, fiscal rules have been given increasing attention across the OECD, with the aim of making fiscal policies more sustainable and less pro-cyclical. The Belgian experience so far has proven mixed. Several domestic fiscal rules (apart from the EU stability pact) have been in place over the past decades, in particular during the successful run up to the euro adoption (Table 1.4). During the 2000s, up until 2007, rules were relatively well respected (Van Meensel and Dury, 2008), contributing to the overall balance in public finances. However, one-off measures were used to achieve the balanced budget objective, implying that part of the achievement was unsustainable and the rules did not prevent unexpected improvements (such as in interest payments) from increasing primary spending above what had been planned in budgets. Moreover fiscal policy was not tight enough to guarantee consistency with the High Council of Finance's recommendations on medium-term fiscal sustainability targets (which required general government surpluses).

In order to better anchor annual budget to the concept of fiscal sustainability, fiscal policymaking should focus on a medium-term structural budget target, derived from a strategy to assure long-term sustainability of public finances. Such medium-term targets, proposed in the previous *Survey*, should be made operational, for instance by translating them into multi-year budgets with annual expenditure ceilings. Ceilings could be imposed on specific spending areas, with overspending compensated within the given area. There may be a case for exempting from ceilings some very cyclical items (such as unemployment benefits), or items outside the direct control of the government (such as interest payments). Specific rules would be required for windfall gains, and for tax expenditures. The latter should remain, as currently, published annually, but could be attached as an annex to the budget. Multiannual budgets would put annual plans into a medium-term perspective and help to correct incidental slippages. This need was recognised in the Stability Programme of 2010, but the budget for 2010 constituted only a small step in the direction by outlining the main 2011 budget plans. Moreover, multi-annual budgets would encourage upfront presentation of policies to achieve targets, improving transparency and potentially discouraging the use of one-offs. Overall, such a set-up should allow automatic stabilisers to work on the revenue side and perhaps on selected spending items.

Table 1.4. **Several domestic numerical fiscal rules have been in place since the 1990s**

Type of rules	Body subject to rule	Details	Sanctions/enforcement
Expenditure			
1993-1998	Federal government	Zero real growth limit on primary expenditures	In the coalition agreement. No sanctions foreseen
Since 1995	Social security	Rule on the real growth of the expenditure ceiling for health spending (since 2004, 4.5% per year)	In law. Automatic compensation mechanism
Balanced budget			
Since 1990[1]	Local governments	Annual nominal budget balance[2]	In law. Regions, as supervisory authorities are responsible for monitoring the implementation
1992-2008	Social security	Nominal budget balance	In the coalition agreement. No sanctions foreseen
1990 (1995)-2008	Regional governments	Nominal balance (or surplus) by 2010	Political agreement. Potential sanction – federal level can impose borrowing limits
2010-2015	Regional governments	Nominal balance (or surplus) by 2015	Political agreement. Potential sanction – federal level can impose borrowing limits
Revenue			
1995-1999	Federal government	Growth of revenues must follow nominal GDP growth	In the coalition agreement. No sanctions foreseen

1. In the early 1990s, the rule implemented was to stabilise debt to revenues, afterwards replaced by a balanced budget rule.
2. The local government nominal balance is not based on ESA 95 rules and for instance does not include capital expenditures and revenues.

Source: European Commission, Belgian government.

Given that all levels of government have to contribute to securing fiscal sustainability, such rules should be made operational both on the federal and the regional and language-community levels. The exact design and implementation of rules for sub-federal government is likely to depend on the outcomes of devolution negotiations, in particular in the area of tax autonomy and transfers. For instance, if shared-tax transfers from the federal level to the regions and communities remain, as now, indexed to GDP growth, surplus-generating expenditure rules would require additional rules on what is to happen to the surplus. On the other hand, if in a new federalism arrangement the (net) transfers would be falling fast enough relative to GDP, a balanced budget rule on the sub-federal levels could suffice, in particular as it has the virtue of being easier to understand. In general, the multi-year approach should concern all levels of government requiring increased co-ordination and streamlining of the budget process. In this context, publishing budgets at all government levels in a standardised format would improve their transparency and public understanding. Further improvements should entail the full adoption of ESA 95 accounting standards by local governments, currently under discussion. On the other hand, a clear obstacle is different electoral cycles among the different constituencies.

... and a stronger role of independent assessments and analyses

A strong fiscal council would increase "the political costs of 'bad' fiscal behaviour" (Coene and Langenus, 2010) and improve transparency of fiscal policy making. Fiscal councils have been operational in some OECD countries, although their exact role differs from one to another

(Box 1.5). In this respect the current Belgian framework has a number of virtues, as several functions of a fiscal council are already performed by existing institutions:

- The High Council of Finance (HCF) is generally responsible for longer-term analysis of fiscal policy. The Council provides annual estimates of consequences of ageing for future budgets, evaluation of Belgian Stability Programmes, their implementation and compliance with budgetary targets (as well as reasons for non-compliance) at different levels of the government. The taxation section of the Council is responsible for tax policy analysis. The work includes medium and long-term recommendations on the budget and taxes with the aim of improving co-ordination and fiscal discipline in the federal structure.
- The National Accounts Institute (consisting of the Federal Planning Bureau, the National Bank and the federal Ministry of Economy) has a more technical role, providing forecasts of key macroeconomic variables for the budget, including the parameters used for the calculation of transfers between different government bodies. While there is no legal obligation for the government to base budget assumptions on these forecasts, in practice they are taken into account. On several occasions more conservative forecasts have been used, the fact being explicitly acknowledged (Bogaert *et al.*, 2006).
- The Federal Planning Bureau (FPB) and (similar) regional institutions have some tasks of the evaluating the policies on the relevant level. Some national economic issues are occasionally researched jointly by the National Bank and FPB.

The HCF and the FPB contributed notably to the improvements of public finances in the 1990s in terms of analysing the requirements of fiscal policy in the run-up to the introduction of the euro and reducing the forecast bias in budget preparation (Van Meensel and Dury, 2008, Lebrun, 2006). However, the weaker role of these fiscal institutions after euro adoption (in particular of the HCF, Coene and Langenus, 2010) shows that their contributions have been more useful in the presence of a strong political consensus. One of the factors behind the weaker role was a political gridlock in the mid-2000s, which had caused problems replacing some of the members of the HCF and hence with issuing recommendations. This problem has been (partly) addressed by a reform in 2006 to resolve recurrent political gridlock problems, though most of the members of the HCF are directly selected by the governments. At the same time, the FPB, which performs high-quality analysis in various specific policy fields, has competencies largely limited to federal issues.

Encouraging the role of independent input in fiscal policymaking may help gather and sustain the political consensus necessary for public finance sustainability. The institutional framework can be strengthened by improving the current system. In this case, the powers and competencies of the existing institutions should be strengthened:

- To complete its role, the HCF, which already has working groups on long-term sustainability, ageing and taxation, should also include a study group on spending issues. This group should look into the evolution, efficiency and effectiveness of public spending at all levels of government, and issue relevant recommendations.
- To increase its analytical input into the debate on how targets can be implemented, when analysing a specific issue (such as taxation, spending, or budget paths) the HCF could also provide a set of policy proposals on how to address the problem (together with projected economic effects). To some extent, this is already done for taxes, but should be done also for the expenditure side and for combinations of measures from the expenditure and revenue side.

Box 1.5. **The role of fiscal councils**

A fiscal council can be defined as a body providing "independent analysis and projections relating to the budget and macroeconomy and possibly normative assessment of fiscal policy in the light of governments' own stated objectives" (Debrun *et al.*, 2006). In principle, it has no mandate or authority over policy or its targets, but may raise the political costs of fiscal irresponsibility through improved transparency of fiscal policy (Coene and Langenus, 2010) by correcting the alleged deficit-bias of fiscal policy due to the role of short-term political considerations in a democratic society. In practice, the role of a "pure" fiscal council is likely to be twofold – assessing the government's budgetary objectives with respect to fiscal sustainability and subsequently the evaluation of adherence to the stated objectives. While many institutions which perform many of the roles of fiscal councils exist across the OECD, they differ widely on mandates, tasks and degree of independence (both legal and perceived) from policy makers. For instance, the one of the institutions often cited as a successful example of a fiscal council (but not only), the Dutch Central Planning Bureau, is legally (and budget-wise) a part of the Ministry of Economy, yet its *de facto* independence is widely recognised.

In most OECD countries with a body that can be regarded as a fiscal council the latter would be charged with providing independent macroeconomic forecasts as an input for the budget preparations – with the aim of reducing the forecast bias, arising from a tendency for governments to use overoptimistic assumptions (Hagemann, 2010). Still, in most of these countries it will be a commonly accepted principle rather than a legal obligation, where the political costs of not adhering could turn out high (*e.g.* the Netherlands, Belgium, and Austria). On the other hand, relatively few fiscal watchdogs will go beyond that task and project the evolution of individual fiscal spending aggregates, evaluate budgets with respect to sustainability, their execution or the individual policy measures, their implementation and economic effects. Most of these tasks are performed by independent research bodies (often Economic Councils) in Denmark, Sweden, the United Kingdom and the Netherlands. On the other hand, normative assessments of budget targets or policy plans are a less common mandate, but for example in Austria, Belgium, Denmark, Sweden and Germany such bodies are to a varying degree explicitly responsible for assessment of compliance with fiscal rules or proposing alternative measures in case of slippage (Hagemann, 2010).

- The HCF should continue its *ex ante* and *ex post* analysis of public finance sustainability but also have a mandate to assess budgets (and their execution) at all levels of the government. This should allow the HCF to give a relatively early assessment on whether budgets are on a track consistent with sustainability and to identify the origins of any slippage or over-performance.
- Given the good track record, the National Accounts Institute should continue to provide input macroeconomic forecasts to be used when calculating budget plans. This role could be enhanced by publishing the simulated evolution of public finances with unchanged policies in order to provide a baseline scenario and facilitate the assessment of new proposals.
- To improve the oversight over the increasingly important regional and community policies and assess them against comparable benchmarks, the FPB or the National Accounts Institute should have freedom to initiate research into sub-federal policy areas, assessing economic and fiscal consequences of any existing or proposed significant policy measures. In practice this can be done in co-operation with the regional institutes.

The main role of the fiscal councils would be advisory, with an overall aim of improving the transparency of fiscal policy making and increasing the public understanding of the need for fiscal consolidation. This means that governments should not be obliged to adopt the recommendations, but importantly, if a government should decide not to follow the recommendation it should obliged to publicly state their reasons for doing so (*e.g.* before the parliament), thereby increasing accountability on both sides and providing a ground for debate. In case of the sub-federal governments, the increased mandate of the fiscal institutions would also assure that they are subject to similar surveillance standards as the federal government – which is currently under the scrutiny of international institutions (EU, IMF, OECD) – a particularly important consideration given the sub-federal level's increasing responsibilities. The fiscal institutions should have sufficient independence to be considered as a neutral provider of assessment and recommendations, which requires assuring adequate resources, with participation from all levels of government.

Box 1.6. **The main recommendations for securing fiscal sustainability in the federation**

Design and implement a credible fiscal consolidation plan, focusing on public expenditures

- Establish a credible consolidation path with well specified structural measures to achieve at least ¾ per cent of GDP consolidation per year until 2015 as planned. Treat the path as a minimum requirement.
- Focus consolidation on reducing spending at all levels of government and broadening tax bases by removing tax expenditures. Review cost efficiency of all public administration, particularly of wage costs.

Modernise social security

- Reduce and remove spikes in effective marginal tax rates by tax-financing social security and control expenditures via strict spending ceilings. A first candidate to be financed via general taxation could be health care, reflecting its universal provisions and where its complex governance means that most parametric reform has originated from the federal government. In a more gradual approach, feedback mechanisms should be introduced in the non tax financed programmes to secure system credibility.

Fiscal federalism reform should also address fiscal sustainability

- Secure sufficient revenues for the federal level of government to meet the cost of population ageing and public debt service. This would include ensuring that intergovernmental transfers reflect services provided, for instance implying the introduction of a workplace element in the sharing of income taxes. Make such transfers sustainable by removing the implicit pension transfer from the federal level to sub-federal level of governments. Alternatively, the regions and communities could generate the necessary surpluses.
- Better align expenditure and revenue responsibilities at the sub-federal level of government by requiring that the regions and communities develop their own tax bases. Improve cost-efficiency of public services via better and less costly co-ordination or changes in the federal division of powers.
- Introduce an internal stability pact to share pre-funding responsibilities and stipulate pre-agreed automatic sanction mechanisms and recovery paths in case of non-compliance with commitments – particularly important issues if EU reforms lead to direct sanctions for fiscal underperformance.

Box 1.6. **The main recommendations for securing fiscal sustainability in the federation** *(cont.)*

Strengthen the fiscal framework

- Govern fiscal policy by a medium-term surplus objective that is consistent with the prefunding strategy. Make this operational by adopting expenditure ceilings for all levels of governments and spending departments.
- Extend the tasks of the High Council of Finance to include evaluation of expenditures at all levels of government. Extend also the budgetary oversight to include *ex post* analysis at all levels of government to provide early fiscal sustainability assessments. This would also allow for evaluation of the adherence to the fiscal rules and internal stability pact.
- Expand the tasks of the National Account Institute or the Federal Planning Bureau to include evaluation of the economic and fiscal consequences of individual policy measures at both the federal and sub-federal levels of government to improve oversight. This could include assessments of current subsidiarity principles in terms of which level of government can provide individual public services most efficiently. To facilitate assessments of the fiscal stance, the Institute should also project public finances under an unchanged policy assumption.

Tighter fiscal rules at all levels of government

- Make budgetary targets operational in multi-annual budgets with strict annual expenditure ceilings at all levels of government. Within each government, consider making spending departments responsible for adhering to the expenditure ceiling, while the final responsibility should lie on the relevant government body. The budgetary process should be streamlined and better co-ordinated. In particular, a common and straightforward standard for budget proposals should be introduced across all governments.

Notes

1. To achieve the 0.2% of GDP surplus by 2015 (as proposed by HCF, 2011 and endorsed in the Belgian Stability Programme, 2011, for the period 2011-2014) there is a need of improvement in the structural primary balance of 3.6%. Based on a no-policy-change scenario, ageing costs are assumed to grow some 1.1% of GDP over 2009-2015 (HCF, 2010). This is assumed to be evenly distributed over time, requiring an additional consolidation of some 0.9 % of GDP over 2010-2015. Hence overall the consolidation need is 4.5% of GDP over 5 years, which is roughly 0.9% per year.
2. There are some indications they do not have much of an effect on reducing grey-zone activity (FlandersToday, 2010).
3. OECD Revenue Statistics reveal Belgian property taxation revenues as being below the OECD average. However, regional imputed rent taxation (precompte immobiliere) is not included in these statistics and yields revenues of another 1.2% of GDP.
4. Professor Alain Jousten form University of Liege provided external consultancy work on all social security issues.
5. The number is a simple static estimate derived from the budgetary costs of non-employment, as calculated by the Federal Planning Bureau. The annual cost of a non-employed person, in terms of foregone fiscal revenue was estimated to be around EUR 18 000 in 2002 (Bresselers *et al.*, 2004). The cost of an unemployed, (augmented by the spending on unemployment benefits) was estimated to be above EUR 25 000. Creating jobs for 150 000 people per year for over 5 years would hence yield some EUR 15 billion of structural savings. While the number is enormous relative to past employment growth (largest growth on record is 82 000 in 2000), it would only mean an increase in the employment rate to 74% – the Belgian target for 2020 and below or in line with the levels observed in half of the OECD countries prior to the crisis.

6. For example, the total administrative cost of the unemployment compensation system is 4.6 % of total benefits in 2010, of which about half is accounted for by the services of these paying agents.
7. Another issue is the restriction of the contribution base. Pension income (above a minimum threshold) is subject to a reduced social security contribution of 3.55%, intended to cover healthcare costs. Higher pensions are subject to an additional "solidarity" contribution of 0.5-2%. According to the budgetary accounting rules, a worker's contribution for medical care is also 3.55% of gross wage, but the additional employer contribution is 3.80%, leading to a total contribution rate of 7.35%.
8. The current transfers of tax revenues from the federal to the regional level are based on historical budgets. When competencies were transferred to the regions (as in the early 1990s and in the 2000s), the budgets associated with them were also transferred (through the shared income and value-added tax revenues). The transfers where then (basically) indexed to GDP (with the exception of a consolidation effort preceding euro adoption, when the governments agreed to have price indexation only), regardless of whether certain areas have become more/less important.

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ANNEX 1.A1

Progress in structural reform

Past recommendations	Actions taken and current assessment
A. FISCAL POLICY	
In light of the crisis, the automatic stabilisers should be allowed to work fully, but the government should restrain from further discretionary stimulus, given the problems with fiscal sustainability.	Automatic stabilisers were allowed to work fully in 2009. From 2010 some fiscal consolidation was already implemented.
Ensure the measures already introduced are withdrawn once the crisis subsides. Any further measures to stimulate the economy, if necessary, should be timely, well targeted at groups most affected by the crisis, and accompanied by a sunset clause to guarantee automatic withdrawal.	Most crisis-related labour market measures have been prolonged into 2011 (reduced working time schemes for blue-collar workers) or are becoming permanent (the new reduced working time schemes for white collars, allowances for fired workers). Measures to aid the construction sector have expired in 2010. Energy bill subsidies expired in 2009.
Couple counter-cyclical measures with measures improving long-term sustainability (for example, an increase in unemployment benefits together with a limit on their duration and steeper regressivity).	The 2009-2010 wage agreement increased somewhat the regressivity of unemployment benefits.
Supplement the strategy of prefunding upcoming costs of ageing with structural reforms in the pension and health systems in order to reduce these costs. Increase the effective and legal retirement age in order to reflect past and future gains in life expectancy.	The Intergenerational Solidarity Pact of 2005 contains provisions on structural measures needed to improve older worker employment if certain targets are not reached by end 2011. A task force on pension reform has been set up and reported in 2010. Work has been suspended due to federal government coalition talks.
Set realistic, structural medium-term targets and be accompanied by credible instruments to guarantee their achievement. Introduce multi-year budgeting and expenditure ceilings.	The 2011-14 Stability Programme stipulates a path towards achieving fiscal sustainability, but does not identify measures on how the plans are to be realised. The 2011 budget aims at a deficit of 3.6% of GDP. The introduction of expenditure rules is under examination.
Foster the role of independent institutions in evaluating budget proposal and assessing the effectiveness of budgetary measures.	No action taken.
Present the budget in a more streamlined version, with the main figures on assumptions and outcomes, and new measures together with their expected impact. Place it on the website of the responsible minister with evaluations and supporting documents.	A website with federal budgetary information and explanations has been set up.
B. FISCAL FEDERALISM	
STRENGTHEN THE FISCAL POSITION OF THE FEDERAL GOVERNMENT	
Reduce the income tax transfers to the regions. Redesign the shared income tax transfers not to grow faster than actual tax revenues.	No action taken. The reform of the fiscal federalism arrangement is one of the main issues under discussion in the federal government coalition negotiations since June 2010 elections.
Allocate pension expenditure for civil servants of sub-federal administrations, currently a federal responsibility, to the lower government levels.	No action taken.
Encourage sub-federal governments to create own revenues (such as personal income taxes or property taxation and user fees).	Regions have agreed on introducing a road pricing system in 2013-14. Revenues from road charges will go into regional coffers.
REDESIGN THE ALLOCATION OF SHARED PERSONAL INCOME TAX BETWEEN REGIONS	
Internalise fiscal externalities between regions, notably in the Brussels region, for example, by introducing the "workplace principle" in shared tax revenue allocation.	No action taken.

Past recommendations	Actions taken and current assessment
REDESIGN THE SYSTEM OF EQUALISATION TRANSFERS	
Reduce the disincentives for regions which receive equalisation transfers to develop their own tax base, for example by reducing the progressivity of the transfer system.	No action taken.
IMPROVE COHERENCE OF POLICIES AND SPENDING EFFICIENCY OF SUB-FEDERAL GOVERNMENTS IN AREAS OF NATIONAL INTEREST	
In employment policies, systematically inform about job offers in all regions. Limit the duration of unemployment benefits to shift some of the costs for the long-term unemployed from the federal government to the municipalities. Transferring activation responsibilities for social assistance recipients to the municipalities and allow them to use budgetary savings in this area for other purposes.	No action taken.
Evaluate R&D policies at all levels of government to and also explore where efficiency could be improved by giving more responsibility to the federal government. At the minimum, all involved ministries need to co-operate closely and exchange information about the effectiveness of policies.	In April 2011 a peer-review of research policies at all levels of government was conducted. In Flanders several R&D institutions are evaluated annually. In March 2011 the French Community and Wallonia adopted a framework to improve R&D co-operation between them.
In education, ensure an adequate allocation of transfers from the federal government, more spending efficiency and efforts at the sub-federal level to create own revenues, such as from tuition fees in tertiary education, combined with income-contingent loans.	No action taken.
In environmental policy, create an integrated green certificate-trading scheme.	No action taken, although the (limited) tradability between Walloon and Brussels certificates remains in place.
C. TAX POLICIES	
THE TAX SYSTEM SHOULD BECOME MORE RELIANT ON LESS DISTORTIVE TAX SOURCES AND BROADER TAX BASES	
The tax system should rely more on less distortive tax sources, such as consumption and owner-occupied housing taxes, to allow a reduction in taxes on labour and on corporations. Reform should aim at broadening tax bases to allow for lower rates.	No action taken.
MAKING LABOUR TAXATION MORE GROWTH ENHANCING BY BOOSTING LABOUR DEMAND AND SUPPLY	
To address the remaining labour market traps, spikes in the effective marginal tax rates should be removed.	Employees social security contributions are now gradually phased in with income, from zero at the minimum wage (EUR 1 415 per month) to the standard rate of 13.07% (at around EUR 2 200 per month).
Lower the average and highest marginal labour tax rate to increase participation and hours worked. Complete the full tax separation of spouses. Reduce drastically the scope of tax expenditures and structural relief and pursue social goals through more targeted and direct measures.	No action taken.
Scale back wage subsidies and social security contribution reductions and focus them on the difficult-to-employ groups, such as low-wage workers. During the crisis, a special attention should be given to the low-skilled youths who are at a greater risk of dropping out of the labour market.	The federal anti-crisis "win-win" plan for 2010-11 offers full or partial exemptions in social security contributions for young workers (low-skilled), and long-term unemployed. In Flanders, some reductions in overlaps of labour market measures with federal measures and improvements in cost-efficiency. New measures planned for particular groups (*e.g.* single-parent families).
MAKE THE CORPORATE TAXATION SYSTEM MORE FAVOURABLE FOR ENHANCING BUSINESS	
Stimulate SMEs growth to optimal size by scrapping reduced corporate tax rates. Lower the high standard corporate tax rate and make the system more neutral *vis-à-vis* funding sources by choosing a notional interest rate that reflects market conditions.	No action taken.
INCREASE THE NEUTRALITY OF CAPITAL INCOME TAXATION	
Increase taxation of owner-occupied housing and reduce deductibility of mortgage repayment. Make taxation of other savings vehicles neutral *vis-à-vis* owner-occupied housing by phasing out tax preferences, realigning applied rates and introducing of capital gain taxation.	No action taken.

Past recommendations	Actions taken and current assessment
A HIGHER RELIANCE SHOULD BE PLACED ON CONSUMPTION TAXES AS A REVENUE SOURCE	
Replace reduced VAT rates with standard rate. Increase taxation of fuels, particularly diesel, to reflect emission abatement objectives. Consider introducing of road pricing, particularly for heavy vehicles..	The relative taxation of diesel has been increased slightly in 2010. Belgian regions have agreed on the introduction of road pricing from 2013-2014.
D. COMPETITION	
THE COMPETITION AUTHORITY NEEDS FURTHER STRENGTHENING	
Monitor the effective independence and the accountability of the Competition Authority. Increase its resources. Make the Competition Council the institution of appeal against all the decisions of sectoral regulators. Introduce criminal sanctions for hard-core cartel infringements. Use high fines and review confidentiality rules to facilitate the co-operation of the Authority with sector regulators	The number of competition inspectors has been gradually increasing in 2009-10. In 2010-11 a chief economist and deputy chief economist were appointed, allowing the authority to start a non-case related investigation for the first time. The competition body has prepared draft legislation to introduce administrative sanctions for individuals.
COMPETITION-BURDENING REGULATION IN RETAIL DISTRIBUTION SHOULD BE ABOLISHED	
Competition inhibiting regulation in the retail sector should be scrapped (e.g. restrictions on sales below cost, opening hours and tied sales, black-out periods). Zoning laws for large outlets should be restricted to evaluating spatial effects to assure they do not protect existing retailers against new competition.	The April 2010 law authorised tied sales (except in financial services) and relaxed somewhat the restrictions on sales with a loss and at low profit. The black-out period was also reduced and limited to clothing. Restrictions on opening of large outlets were relaxed by scrapping the necessity to assess the impact on existing businesses.
SECTORAL REGULATION IN THE ENERGY SECTOR NEEDS TO FOCUS ON IMPLICIT BARRIERS TO NEW ENTRY	
Replace the complicated regulatory structure with a single, independent nationwide energy regulator with competencies including the areas of distribution and supply. Alternatively, introduce binding co-operation procedures among the regulatory bodies and improve independence of the regional regulators.	The federal energy regulator's powers and competencies were reinforced somewhat in April 2011.
Ownership separation in the energy markets should be considered. Regulatory efforts should ensure enforcement of the ban on cross-subsidisation between electricity and gas markets.	Changes in the law regarding unbundling have been drafted, but the ownership unbundling is already *de facto* the case among TSOs for electricity and gas as well as managers and storage facility LNG facility.
Reconsider the universal service obligations (USOs) and their variation across regions. USO's should be financed by the government budgets directly rather than through distribution tariffs.	The Flemish region is currently evaluating its USO policies, to be finalised by September 2011.
In the electricity sector, increase interconnection capacity, encourage new entry and continue auctioning off of the incumbent's production capacity.	The Minister of Energy has officially received the mission to analyse the feasibility and impact of encouraging new facilities.
Develop an anonymous wholesale pool for gas to facilitate new entry. Strengthen vertical separation, between the Zeebrugge gas hub and the LNG terminal and the dominant players in the energy market. Assess effectiveness of measures to reduce long contract lengths in the gas wholesale market.	No action taken.
THE TELECOMMUNICATION REGULATOR NEEDS TO TOUGHEN ITS STANCE AGAINST INCUMBENT'S VIOLATIONS	
Give the regulator the ability to introduce periodic penalties and to block the introduction of offers if *ex ante* conditions are not fulfilled. Furthermore, the regulator's independence may need explicit strengthening while the government should proceed with the privatisation of the incumbent.	The ability to impose administrative penalties was strengthened in 2009. The regulator has the ability to block the non-compliant offers with the *ex-ante* obligations.
In fixed telephony, the regulator should strengthen its stance on the incumbents violations in the areas of deadlines for local loop unbundling (LLU), service level agreements (SLA), collocation and the quality of services provided. Fines for violations should be used more widely and preferably be automatic.	New procedures and operational standards for LLU and SLA were adopted in 2010.
In mobile telephony, the regulator should lower mobile termination charges and decrease the uncertainty surrounding its decisions through a better preparation to defend them in court. Introduce the fourth network operator. Maximum contract duration should be reduced in order to increase flexibility and facilitate entry. USOs should be funded from the government budget via competitive tendering.	The regulators attempt to reduce charges in June 2010 was challenged in court by 2 of the 3 mobile operators and a verdict is pending. The call for candidates for the fourth operator launched and finalised in spring 2011, resulted in one application. The license is to be awarded in mid-2011. Consumer contracts with operators are being limited to 24 months, with regulated early termination fees.

Past recommendations	Actions taken and current assessment
FASTER OPENING UP OF THE OTHER NETWORK SECTORS IS ESSENTIAL	
Introduce competition in all segments of postal services, decrease entry barriers. Reconsider the scope of USOs and finance them directly from the budget through competitive tenders.	Since 2011 the legal liberalisation of the postal market has been completed. USO providers are to be selected based on competitive tenders for a period of 10 years.
Faster opening up of the rail transport sector should be accompanied with strengthening the independence and powers of the regulator.	The government is working on a proposal to change the functions and responsibilities of the regulator.

ANNEX 1.A2

Scenarios for public finances

Simulations were performed for the evolution of public debt by 2060, based on the assumptions:

- GDP growth (nominal) is taken from the *OECD MTB Database*. For the data 2026-60 the values are kept constant 2025 levels (3.6% per year). In this simple, long-term model no feedback from fiscal policies to GDP growth is assumed.
- The estimates for the costs of ageing are from the High Council of Finance (2010). This means an increase from the current 25.7% of GDP to 31.8% by 2060. They are interpolated linearly for the years where estimates are not available.
- The nominal interest rate (effective) on government bonds is fixed as 5% in 2020 (roughly in line with the EC assumption of a 3% real interest rate in its public finance sustainability scenarios). This interest is phased in from the current rate by 2020 (due to gradual debt rollover).
- Vulnerability tests with different assumptions on the interest rates, growth rates and ageing costs reveal that the overall conclusions are relatively stable.

The scenarios employed are the following:

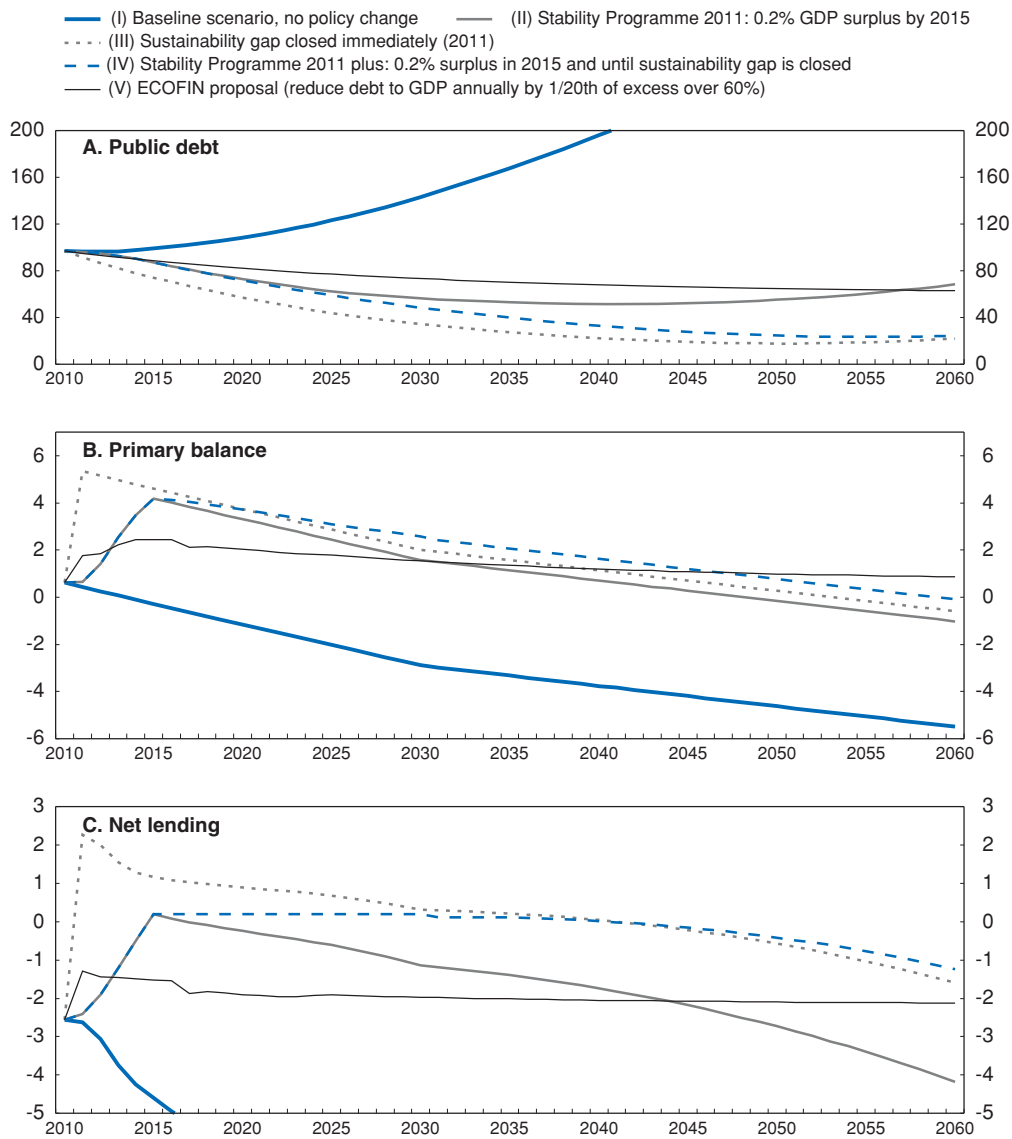
- **Scenario I – no-policy-change baseline: no consolidation is taken in 2011.** Rising ageing costs reduce the primary balance throughout the period, increasing the deficits. The scenario leads to explosive developments in the public debt to GDP (Figure 1.A2.1).
- **Scenario II – 0.2% of GDP surplus by 2015, no policy changes thereafter.** Strategy is based on the Stability Programme of 2011. Consolidation efforts until 2015 are helped by falling interest payments (due to the reduction of debt to GDP), which is partly offset by rising ageing cost. After 2015, rising ageing costs have a negative effect on the primary balance. Public debt falls until the 2030s, but starts increasing rapidly thereafter as ageing-cost increases dominate.
- **Scenario III (fiscally sustainable) – sustainability gap closed in 2011.** Assumes that in 2011 the sustainability gap (defined as the European Commission's S2 measure – an immediate increase in the primary balance that ensures the public finance sustainability in light of upcoming increases in ageing costs, EC, 2010) is closed in a single effort. This means a one-off shift in the primary balance by about 5 per cent of GDP and leads a fall in the debt-to-GDP, until 2040s, and a small increase thereafter. Ageing cost increases reduce the primary balance starting 2012.
- **Scenario IV (fiscally sustainable) –0.2% of GDP surplus by 2015 and thereafter, until fiscal sustainability is achieved.** To close the sustainability gap, a surplus is necessarily

maintained into the 2040s, meaning that rising ageing costs are offset only partly by falling interest payments, partly by alternative measures in the budget. Thereafter increasing ageing costs reduce the primary balance.

- **Scenario V (fiscally sustainable) – gradual convergence to 60% debt-to-GDP ratio.** The debt-to-GDP ratio follows the rule proposed in 2011 by ECOFIN – one-twentieth of the excess over 60% is reduced per year. In this case debt-to-GDP converges to 60% in the long run, meaning that consolidation is effectively back loaded (large increases in ageing costs have to be compensated with budget cuts, and hardly benefit from falling interest payments).

Figure 1.A2.1. **Simulated developments in public finances to 2060**

Different scenarios, as a percentage of GDP



Source: OECD calculations based on *OECD Economic Outlook 88 Database.*

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ANNEX 1.A3

The Belgian social security system

A basic guide to the Belgian social protection system

The following presentation summarises the main features of the Belgian social protection landscape in terms of the essentials for the understanding of the system's design and working. Like in other OECD countries, the social protection system is based on both social insurance and social assistance principles. By international standards, Belgian social protection has a broad coverage in terms of risks and a distinguishing feature of the system is that it grants social partners and their collective bargaining agreements a key role in the design and operations of the system. The result is a complex system of social protection institutions and programmes, reflecting several factors. As in most countries, social protection has evolved in terms of its objectives, its composition and its scope to reflect changing economic constraints and social needs, leading to a progressive shift of focus and resources between the different programs and institutions. Moreover, social partners play an important role in social insurance, but the overall social protection landscape is also heavily affected by government intervention in the form of social assistance programmes as well as in the generosity, and financing of various social insurance schemes. Lastly, the changes in the federal structures have increased complexity of the system.

In light of this complexity, the various programmes can be classified into three broad regimes for wage-earners, self-employed and civil servants. Participation in the system is compulsory for all labour market participants, with coverage extended to dependents. The regimes are completed the extension of some types of social insurance coverage to non-workers and a needs-based social assistance component. The remainder of this annex uses this classification to outline programmes and the associated role of the public and private institutions involved in the operations of the system. First, the main systems for private sector wage-earners are described. This is followed by a similar treatment of the system for the self-employed, before turning the attention to the case of the public sector. The annex is completed with a description of the social insurance and assistance-based extensions to the system.

The contractual wage-earner regime

The contractual wage-earner regime is the largest in terms of membership, covering all blue and white collar wage-earners in the private sector as well as contract workers in the public sector. Workers are entitled to 6 main categories of benefits: medical care, sickness and invalidity; pensions; unemployment; family allowances; work accidents; and

professional diseases. For blue collar workers, the system is extended to include annual leave benefits.[1] All benefits are provided under federal legislation, with federal institutions having a predominant role in implementation – both on the benefit and financing side.

Benefits provision in the institutional setting of insurance funds

Public health insurance is organised and co-ordinated at the federal level by the health insurance fund (RIZIV-INAMI).[2] Health coverage includes two main categories of risks: medical care insurance and invalidity benefits for people who are unable to pursue their work because of accidents or conditions linked to the private life of the insured.[3] Medical care benefits are payable under the form of partial cost reimbursements – with higher reimbursements available for low-income workers and their families. Sickness and invalidity benefits are payable under the form of a real annuity that is a function of (capped) past wages, with different benefit formula applying to primary incapacity (up to 1 year) and to secondary incapacity (beyond 1 year). At an operational level, the health insurance fund relies on a series of accredited mutual health insurance providers that act as the interface between the health insurance system and the insured – with financial balancing mechanisms in place for compensating inherently different risk pools between providers. The role of the mutual insurance providers in the public health insurance is rather wide. Beyond their role as a paying agent on behalf of the health insurance fund, they also play an active gatekeeper role in the access to sickness and invalidity benefits. In addition, mutual insurance bodies offer supplementary health insurance policies to complete the coverage by the basic regime.

The pension system for the contractual wage-earners is organised and run by the Pension fund (RVP-ONP), which is in charge of pension benefit payments to retirees, their entitled dependents and survivors. Benefits are computed on the basis of 45 best years of earnings. The legal retirement age is 65, but early retirement is possible as of the age of 60, after a career of 35 years. Fictive earnings are imputed into the earnings record for any period of time that the individual was in receipt of other social insurance benefits – without any contributions due on behalf of the paying institutions. Social security benefits are indexed to the cost of living and on an occasional and purely discretionary basis to the growth rate of the economy. *De facto*, the pension system has progressively shifted away from its originally predominantly Bismarckian logic with protection against longevity risks being provided proportionately to contributions. Over time, three factors have interacted and lead to a substantially weakened link between benefits and contributions (*i.e.* a Beveridgean system). *First*, maximum annual pension benefits have not grown in line with average wages, leading to an increasing share of individuals hitting the maximum, but with their social contributions still due on full earnings. *Second*, minimum pensions have progressively been increased more strongly than average pensions – as most recently illustrated in the recent 2011 budget bill. *Third*, fundamental change on the financing side substantially altered the link between benefit accrual and contributions – particularly as of 1994 (see below).

The payment of unemployment benefits is organised by the Unemployment insurance fund (RVA-ONEM). Benefits are computed based on capped past earnings. Several features render the system different from its counterparts in other countries. *First*, eligibility is not entirely based on a contributory history, as high school graduates can enter the unemployment rolls without ever having contributed to the system. *Second*, benefits are

payable indefinitely. *Third*, job search and availability conditions are widely required, but not universally applicable to all beneficiaries. This is particularly the case of the so-called old-age unemployed, *i.e.* older unemployed who are exempted from such requirements.[4] Beyond paying for unemployed, the unemployment insurance system also covers the bulk of costs relating to the Belgian system of conventional early retirement. Under conventional early retirement, workers can leave the labour force by claiming a basic compensation that is slightly more generous than regular unemployment benefits. In addition, workers often obtain a complement from their former employer. Upon reaching the legal retirement age, individuals transfer into the regular pension system. Conventional early retirement has played an important role in the Belgian retirement landscape, and combined with the old-age unemployment system *de facto* represents an important additional retirement system, as unemployed older than 58 is exempt from job-search requirements and those older than 50 are exempt from the follow-up procedures, implying that job search requirements are not enforced.[5] The unemployment insurance system also contains uncommon administrative arrangements. Job placement and training services are fully devolved to the regional level, requiring an important need for co-ordination between levels of government. In addition, trade unions play an important operational role as official paying agents with beneficiaries of unemployment and early retirement benefits having to register with trade unions to receive benefits as well as the informational points of contact for the unemployed with respect to their entitlements.[6]

Family benefits are organised by the Child allowance fund (RKW-ONAFTS). Lump-sum benefits are payable upon birth and adoption, and a real tax-free annuity is payable to dependent children. The monthly benefit amount is a function of the number of children in the household and is increased in case of special needs, the latter being a function of the child's characteristics (disability, *e.g.*) and/or the parents' (social benefit receipt of the parents, *e.g.*). As for other branches of the social insurance system, a large part of the operations is effectively outsourced to separate accredited family allowance registers that employers are affiliated with. Each one of these registers effectively manages and pays the child allowances for the employees of the affiliated employers.[7]

Work accidents and professional diseases are the two remaining big categories of risks covered by social insurance. The insurance of professional diseases is completely managed and operated by the Professional diseases fund (FBZ-FMP), while the situation is quite different for work accident insurance, where the largest part of the insurance coverage is provided by specialised accredited private work accident insurers, reflecting the mandatory purchases from private insurers. Insurers provide civil liability insurance as well as coverage against loss of earnings ability. A public institution, the Work accidents insurance fund (FAO-FAT) acts as the market regulator (medical and insurance) and provides complementary insurance coverage to some categories of victims.

Financing in the institutional setting

There are two major sources of financing for the 6 categories of benefits. The first is tax-deductible contributions of workers and employers on earnings, which include all forms of compensation, such as wages, fringe benefits, and other emoluments. The institution in charge of collecting these contributions is the RSZ-ONSS, with the employers acting as withholding agents,[8] collecting social contributions according to the schedule illustrated in Table 1.A3.1 the 6 main categories of benefits. Extra contributions for

employers cover a wide array of special purposes, such as vocational training leave (0.05%), child care (0.05%), a contribution to protect workers of failed companies (between 0.09 and 0.14%), the asbestos fund (0.01%), etc. In addition, some categories of employers (typically larger companies) have additional surcharges on unemployment insurance, annual leave and workplace accident insurance. Further, an effective extra 7.48% of gross wages is due as a wage moderation contribution by employers. Finally, employers are required to purchase separate workplace accident insurance coverage with recognised private insurers. All revenues are centralised by the RSZ-ONSS in one common resource pool – the global financial management before being distributed to the various funds according to their revenue needs.[9]

In spite of this general contributions schedule, there are numerous cases where contributions are either not due or reduced. There are two broad scenarios of contribution reductions – both sharing the common aim of increasing employment. *First*, there are targeted measures that grant reductions or waivers for employers that hire their first workers, recruit a long-term unemployed person, employ young workers, low-wage workers, etc. *Second*, there are general measures that apply to all categories of workers. One general measure is the special contributions regime for employers in the non-profit sector. Another one is a per-worker lump-sum reduction in social contributions that is granted to almost all employers in Belgium. These general measures in turn contain a series of target-group specific complements – and in some cases benefits under targeted and general measures can be cumulated.

Table 1.A3.1. **Contributions for contractual wage-earners**[1]

Categories	Employee contribution (%)	Employer's contribution (%)	Total (%)
1. Health and invalidity			
Medical care	3.55	3.80	7.35
Sickness and invalidity	1.15	2.35	3.50
2. Pensions	7.50	8.86	16.36
3. Unemployment	0.87	1.46	2.33
4. Family benefits	0.00	7.00	7.00
5. Accidents at work	0.00	0.30	0.30
6. Occupational diseases	0.00	1.00	1.00
Total (= "global contribution")	**13.07**	**24.77**	**37.84**

1. Contributions for blue-collar vacation pay is not contained in this table. Similarly, some earmarked supplementary contributions are not detailed.

Source: RSZ-ONSS.

The second major source of financing is transfers from the federal government – more specifically to the RSZ-ONSS as the financing agent of the contractual wage-earner scheme.[10] The transfers are partly discretionary and partly earmarked. The federal government subsidy to the RSZ-ONSS to support the social insurance of contractual wage-earners is the clearest example of a discretionary transfer of budgetary resources. Earmarks, on the other hand, pre-commit specific government revenues to an explicit expenditure item. Among earmarked transfers, the most important one is the so-called alternative financing, *i.e.* a pre-commitment of a substantial share of VAT revenues to the RSZ-ONSS. More than 40% of total VAT revenues transit in this way to the RSZ-ONSS. The specific amounts contain both mechanical and discretionary components – as the initially

purely proportional revenue earmark has progressively been adjusted upwards to cover discretionary or mechanical spending needs and revenue shortfalls (*e.g.* financing of health insurance and subsidised household services). Additional earmarked financing for RSZ-ONSS comes from a variety of other sources such as excise duties, the stock-options tax, withholding tax on capital income, the personal income tax and the corporate income tax.

Revenue needs of the various funds are debited to the global financial management of RSZ-ONSS based on the net amount of individual fund's expenditures – *i.e.* net of funds' own revenues. The latter include returns on investments or proceeds from contracted loans as well as earmarked revenues, such as the Health insurance fund's (RIZIV-INAMI) special contribution from pharmaceutical companies on their sales of reimbursable drugs. Another increasingly important financing source is fund-specific alternative financing by the federal government in the form of a direct transfer of VAT and excise tax revenues, in the process by-passing the central financing body of the system. The aim of these mechanisms is to compensate for the impact of discretionary policy measures affecting only specific funds – such as for example the introduction of vocational training leave – or to offset long-term trends affecting some sectors – such as the strongly increasing expenditures in the health care sector.

The self-employed regime

Social insurance for the self-employed is the smallest and least generous of the three social insurance regimes. The system is organised and regulated by the Social insurance fund for the self-employed (RSVZ-INASTI). Contrary to the situation for contractual wage-earners, the same institution is in charge of organising the income and expenditure side of the system. Self-employed are insured against a smaller set of risks as compared to wage-earners. In addition to medical, sickness and invalidity insurance, they only benefit from old-age insurance and family allowances.

Benefits provision in the institutional setting of insurance funds

As a result of explicit policy choices over the last 15 years, benefits are increasingly similar in terms of generosity to those available to wage-earners for the covered risks – while historically insurance coverage was much less complete. Medical care coverage is the prime example of this trend, with coverage progressively aligned on that of wage-earners. Sickness and invalidity payments remain significantly less generous than in the wage-earner scheme, with benefits corresponding to a rather low lump-sum amount. The alignment of the self-employed on the wage-earner system is further by the fact that health insurance provision for both is provided by the same institution – the RIZIV-INAMI. As for wage-earners, pension coverage is also based on an insurance logic. The system has many similarities with the wage-earner scheme in terms of the benefit structure.

The benefit formula for pensions is comparable to the one for wage-earners – though less generous. Benefits are computed in a defined benefit logic based on the 45 best years of earnings – with old-age, survivor and family benefits available. The legal retirement age is 65, and early retirement is possible at the age of 60. While early retirement from the labour market is possible, it is much less common than in the wage-earner scheme, as there are no early exit routes available outside of the pension scheme. Social security benefits are indexed to the cost of living and on occasional purely discretionary measures lead to increases in benefit generosity. While the system officially is a contributions-linked

system, its effective payouts are largely determined by the minimum contribution to the system (see below), as many self-employed declare very low earnings. Benefit calculations are done by the RSVZ-INASTI, while the Pension fund (RVP-ONP) acts as a paying agent for the system.

Self-employed also enjoy family benefits with slightly different conditions and benefit levels as compared to the wage-earner scheme. Benefit levels are determined by the Health insurance fund, but operations are outsourced to private social insurance registers that verify eligibility and make payments to their affiliates and with a separate public insurance register for those not affiliated with a private entity. These registers play a key operational role in the system, being the point of contact of individuals for family allowances as well as having a crucial role in the collection of social insurance contributions (see below).

Financing in the institutional setting

In line with the situation of the wage-earner scheme, there are two main categories of financing: social contributions by affiliates and general government transfers. Contributions of the self-employed obey a significantly different logic from the one for wage-earners. *First*, contributions are not due on a monthly but on a quarterly basis. *Second*, they are not calculated on current earnings but on the indexed taxable earnings over the past three calendar years. *Third*, two separate contributions schedules exist, distinguishing full and part-time self-employed. For full-time self-employed, the contributions schedule is displayed in Table 1.A3.2. For part-time workers, contributions are calculated according to a more favourable schedule for earnings below the first threshold of the system of EUR 12 129.76 with the contributions for full-time earnings applicable for earnings above this threshold.

The most striking difference of the contributions structure with respect to the wage-earner scheme is that contributions have a regressive rate structure and display a maximum amount of taxable wages. This cap effectively has the effect of significantly limiting the effective marginal tax rate on self-employment income as compared to wage-earner income. Finally, contributions are not directly payable to RSVZ-INASTI, but rather to an accredited private social insurance register, which *de facto* act as the sole interface between the RSVZ-INASTI and the insured contributor. Only upon retirement, will the insured get into a direct contact with the self-employed fund. The registers transfer periodically the collected social insurance contribution to RSZV-INASTI, which centralise all revenues (including transfers from the federal budget) in one common resource pool – the global financial management, which then distributed to the various funds according to their revenue needs.

Table 1.A3.2. **Contributions for full-time self-employed**[1]

Earnings in 2008, EUR	Indexed earnings, EUR	Marginal contribution rate
Up to 11 510.56	Up to 12 129.76	Absolute minimum of 650.34 EUR
Between 11 510.56 and 49 704.72	Between 12 129.76 and 52 378.55	22% of net earnings
Between 49 704.72 and 73 249.02	Between 52 378.55 and 77 189.00	14.16% of net earnings
More than 73 249.02	More than 77 189.40	0% of net earnings

1. Contributions in 2011 based on earnings in 2008.
Source: RCVZ-INASTI.

The second main source of financing of the system again comes from government transfers. These government transfers again take the form of both earmarked and non-earmarked government revenues. Historically, the longest standing form of general government financing has been a sustained lump-sum transfer to the system, which has been adjusted upwards over time, partially to compensate for the effect of price inflation, but also partially to offset the budgetary effect of discretionary coverage expansions. In addition to these mechanical components, annual *ad hoc* transfers are made to the system to bring the deficit of the system to the desired level. As for the wage-earner scheme, the so-called alternative financing by means of earmarked tax revenues also plays an increasing role as a tool for general government financing of the RSVZ-INASTI. As in wage-earner scheme a major component is a share of VAT revenues based on a mechanical component based on a formula that is progressively adjusted upwards in line with coverage expansion and financial shortfalls of the system. Additional revenues stem from various other revenues, such as excise duties, the stock-options tax, the withholding tax on capital income, the personal income tax, the corporate income tax, and the tax on insurance policies. Self-employed also benefit from the specific alternative financing that is independent of the job status of the affiliate and purely driven by revenue needs – such as improved financing of hospital care for all insured. Over the period 2006-10, the share of general government financing has increased from 34% to 45%.

Public sector regimes

The social protection for the public sector is the most heterogeneous. Several major kinds of systems can be distinguished – though a full listing would be beyond the scope of this presentation. *First*, there is the regime of the civil servants at the federal, regional and community level. Second, there are the contractual workers at the federal, regional and community level – who are fully subject to the contractual wage-earner scheme discussed above. Third, there is a separate regime for civil servants of the provincial and local level and, fourth, another separate regime for contractual workers at the provincial and local level. Finally, there are a series of special civil-servant pension regimes for public entities and enterprises, such as the national railway company. All of these categories enjoy very different degrees of social protection, with associated large differences in institutional settings. In what follows below, the focus is on the civil servants of the federal, regional and community administrations, and the civil servants of the provincial and local authorities.[11] As compared to wage-earners, the social insurance coverage of civil servants encompasses a smaller group of risks, which can partly be explained by the absence of an unemployment risk and partly by the direct employer provision of some benefits.

Medical care is the only common social insurance program between these two groups. In fact, civil servants are fully integrated on the benefit and financing side in the regime for contractual wage-earners. The Health fund (RIZIV-INAMI) plays the role of co-ordinator, and mutual health insurance bodies are the operators. For federal, regional and community civil servants, the employee contributions are 3.55% and for employers 3.86% of gross wages, payable to RSZ-ONSS. For provincial and local civil servants they are 3.55% and 3.80% respectively, payable to RSZPPO-ONSSAPL (a specialised social insurance institution). In the latter case, the health insurance contributions are passed on to the RSZ-ONSS, ensuring that all civil servant medical contributions and benefits are subjected to the system of global management of RSZ-ONSS.

Pensions are the main point of differentiation both with respect to wage-earners and self-employed, as within the group of civil servants. Pensions of federal, regional and community employee are largely payable without any contributions on the employee or employer side.[12] In contrast to the private sector, retirement is mandatory at the latest at age 65. However, there exists a variety of scenarios under which people can retire earlier – be it under the form of an early retirement pension, invalidity benefits, or waivers from active service. Pensions are more generous than in the other regimes, reflecting that benefits are computed on the average earnings of the last 5 years of service and are indexed on the evolution of wage scales – often a more favourable indexing series than is the case in the other systems. Pensions are computed by the Pension service of the public sector (PDOS-SDPSP) and are paid by the central pension payment service of the federal finance ministry. Effectively, the absence of contributions and the payment by the federal finance ministry means that the latter absorbs the aggregate pension cost of federal, regional and community administrations without cost sharing. Pensions of provincial and local administrations are significantly more heterogeneous across provinces and localities, with three broad types of pension arrangements in existence. *First*, there are pay-as-you-go defined benefit pension plans operated by some provincial/local authorities in a fully autonomous way. *Second*, there are private pension arrangements with an external pension fund, with operations based on the capitalisation of employer contributions. *Third*, there are a number of pension pools operated by the RSZPPO-ONSSAPL that are characterised by varying degrees of generosity and a membership that is largely determined by historical evolutions.[13] The three types of local administration pension systems have in common that all contributions and charges are entirely borne by the employer.

All remaining benefits for federal, regional and community civil servants are directly managed by the employer, without any contributions to a separate social insurance fund. As such, sickness and invalidity benefits, professional disease and work accident coverage are the responsibility of the employer. Similarly, family allowances, though similar in amount and principle to the ones for wage-earners, are paid out by specific family allowance registers for the public sector entities. The situation is slightly different for civil servants of provincial and local governments, where employers have to explicitly contribute 5.25% for family allowances and 0.17% for professional diseases to the RSZPPO-ONSSAPL, who uses these funds to finance benefits for employees in these two areas along rules largely comparable to those in place for private sector wage-earners.

Extensions to the system

Two broad categories of extensions of the system exist, social assistance and social insurance extensions beyond workers and their dependents. Social assistance is the most important extension and includes four main categories of benefits:

- Means-tested social assistance for working-age people.
- Means-tested social assistance for the population above 65 years of age.
- Means-tested benefits for disabled people.
- Guaranteed family allowances.

The right to means-tested social assistance for the working age populations is based on a federal regulation. Its implementation is based on local government's social assistance offices implementing the system in practice and paying out benefits to needy residents. Finally, the community government is in charge of the administrative oversight

of the local social assistance offices on its territory. Benefits paid out under the social assistance regime for the elderly are more generous than for younger recipients. The benefits also obey a different logic in terms of fiscal federalism as it is the federal level that pays out the benefits – with the Pension fund (RVP-ONP) acting as a paying agent. Similarly, the federal government is in charge of the payment of needs-based social assistance to the disabled – through the Federal Public Service Social Security.

Guaranteed family allowances are the only one of these four components that is not means-tested. Eligibility for this benefit is based on the beneficiary's ineligibility for insurance-based family allowances in Belgium or abroad. Hence, it is a residual system, trying to ensure that all families enjoy financial support in raising their children. Beyond these cash benefits per se, all beneficiaries of social assistance are also automatically eligible for medical care coverage under the Health insurance fund (RIZIV-INAMI) social insurance programme, with more favourable reimbursement rates than for average workers.

Finally, there are social insurance extensions available to some specific categories of people. In the field of medical care insurance, students with low or no income and individuals without a social assistance or a work status have the right to contribute to the RIZIV-INAMI by paying age- and status-dependent lump-sum contributions, with any shortfall of contributions again financed by the global managements and alternative financing. Similarly, workers who are working outside of the European Economic Area and are working for a Belgian company or are European citizens have the right to contribute to a special Belgian social protection regime, organised by a specialised public institution, the Social insurance office for people working abroad (DOSZ-OSSOM).

Notes

1. Contrary to white collar workers whose annual vacation is directly covered by their employer, employers of blue collar workers pay extra social insurance contributions to finance payments by a dedicated social insurance institution: RJV-ONVA.
2. Compulsory health insurance is an exclusive federal competency, while public health and health care provision are a shared competency with communities and regions.
3. Workplace-related loss or reduction of earnings ability is protected through the accidents at work and occupational disease schemes we further detail below.
4. For a discussion on the changes of eligibility over time and their effect on labour force and system participation, see A. Jousten, M. Lefebvre, and S. Perelman, "Disability in Belgium: There is More than Meets the Eye", in D. Wise, eds., "Social security and retirement around the world: historical trend in DI provisions and participation and health" (forthcoming), University of Chicago Press and NBER.
5. For an empirical estimation of retirement incentives in Belgium see A. Dellis, R. Desmet, A. Jousten and S. Perelman "Micro-modeling of retirement incentives in Belgium", in J. Gruber and D. Wise, eds., "Social Security Programs and Retirement around the World: Micro Estimation" (2004), University of Chicago Press and NBER.
6. A separate public institution is put in place to act as paying agent for non-unionised unemployed.
7. The RKW-ONAFTS is the provider of last resort for those not affiliated with a family allowance register.
8. In practice, accredited private social secretariat companies sometimes collect the contributions from employers and transfer them on to the RSZ-ONSS.
9. Contrary to the general principle, some specific tasks of these institutions are excluded from the global financial management (*e.g.*, asbestos fund and vocational training leave).

10. In addition to regular transfers, there exists a special earmarked social insurance contribution collected by the federal tax administration with the personal income tax.
11. Contractual employees of provincial and local authorities enjoy a special status both in terms of benefits and institutional affiliation follows closely the one in the private sector – with lower significantly lower employer contributions. Finally, civil servants in public entities and enterprises have regimes that are comparable in structure to the one of the federal, regional and community civil servants – with variations in terms of generosity.
12. Only a 7.5% employee contribution is due on all earnings to finance survivor benefits.
13. At an operational level, the pensions accrued in the pools of RSZPPO-ONSSAPL are computed by the PDOS-SDPSP as for federal employees with corresponding financial transfers from the RSZPPO-ONSSAPL.

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Chapter 2

Enhance the inclusiveness of the labour market

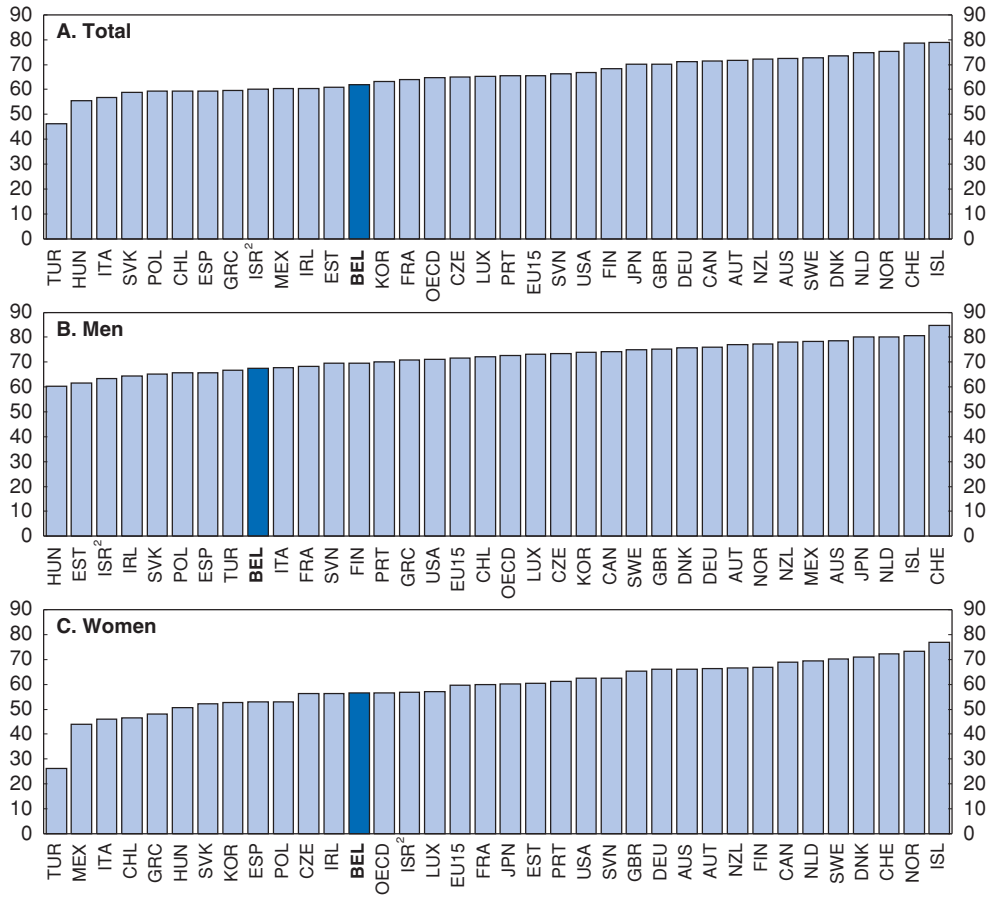
The global crisis led to a smaller increase in the unemployment rate than in most other OECD countries as employment has been sustained through intensive use of reduced working time schemes. These schemes have mostly benefited workers with permanent contracts while the higher unemployment mostly affected workers with weaker labour market attachment. A main challenge for policy makers is therefore to avoid that the increase in labour market segmentation between insiders and outsiders that would hurt the most vulnerable. Over the medium term, labour market policies need to respond to the ageing of the labour force, which implies that an increasing number of workers with permanent contracts will retire. Thus, policies must focus on enabling the current labour market outsiders to get a stronger foothold on the labour market as well as to mobilise under-utilised labour resources. The wage determination system has allowed wages to increase faster than the main competitors and faster than productivity, leading to a gradual loss of cost competitiveness. Minimum wages are high by international standards, hampering entry to the labour market for many low-skilled workers. Unemployment benefits are relatively generous, and particularly for long-term unemployed. A complicated tax-benefit system has created high effective marginal tax rates and numerous labour market traps.

The labour market performed relatively well during the crisis, but structural problems remain

The relatively good labour market performance during the crisis reflected widespread labour hoarding, encouraged by intensive use of reduced work time schemes, and the benefits of more intensive activation policies. Workers with permanent contracts were the main beneficiaries of the reduced work time schemes, and unemployment increased mostly in groups with relatively weak labour market attachment. In 2010, employment started to expand again. However, beyond the relatively good conjunctural performance, structural problems remain more widely. The employment rates for males and females are among the lowest in the OECD (Figure 2.1). Even if population ageing and

Figure 2.1. **Employment rates in OECD countries**[1]

Per cent, 2010



1. Population aged 15-64.
2. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD, *Labour Force Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932459299

cohort effects for females may increase participation rates eventually, these demographic changes are unlikely to boost employment rate towards the national employment targets of 73.2% without accompanying structural reforms.

The low employment rates reflect high structural unemployment and a relatively large number of passive income support recipients, such as early retirees and disability beneficiaries. The following section investigates the widening segmentation of the labour market between workers with permanent contacts and those without. Subsequently, an evaluation is made of how crisis measures – despite their positive short-term impact – have contributed to increasing labour market segmentation while carrying a considerable dead-weight. This is followed by looking into how to strengthen the weak labour market attachment of the groups most affected by the crisis – a particularly important issue over the coming years as the ageing of the labour force means that an increasing number of retiring insiders will have to be replaced. The chapter concludes with an assessment of how the effects of an ageing labour force can be offset by mobilising other underutilised labour resources.

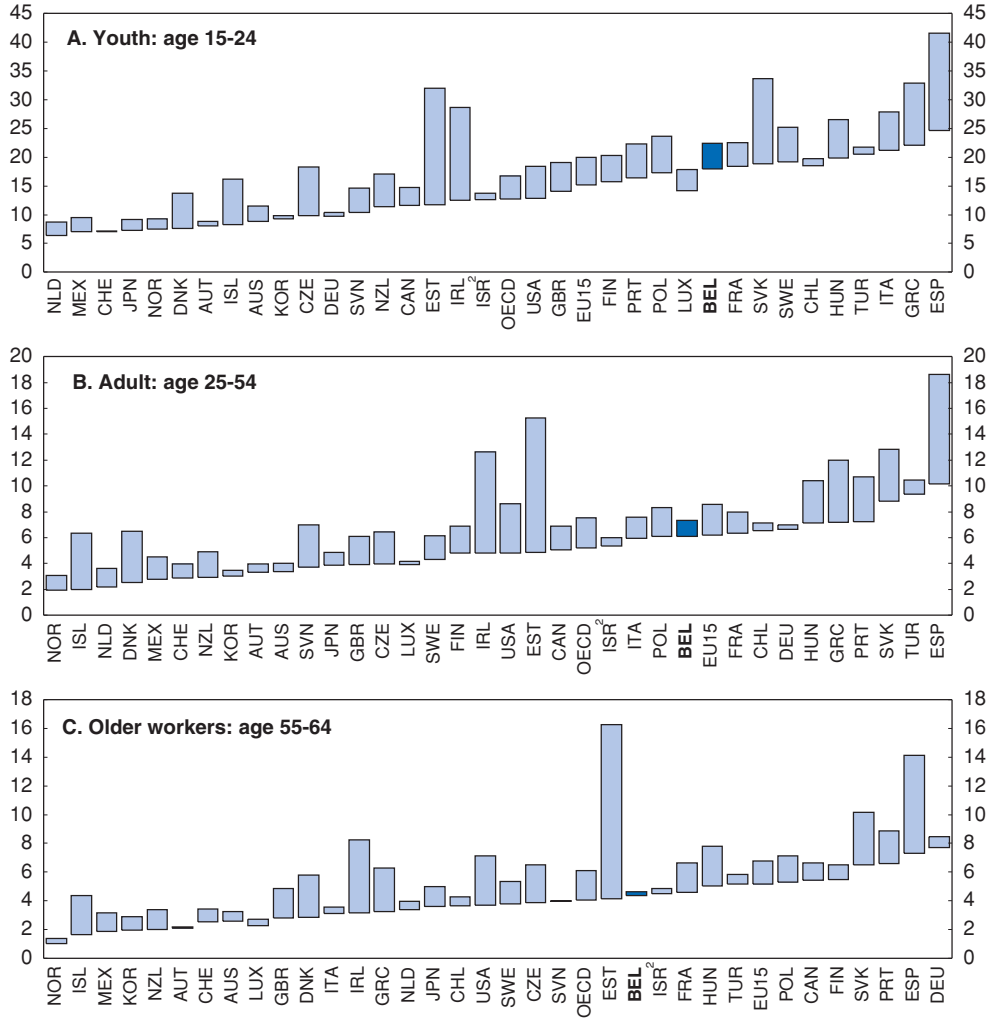
Unemployment mostly affected workers with a relatively weak labour market attachment

The unemployment rate of younger workers rose despite a fall in participation that reflected higher education enrolment and longer studies.[1] This has exacerbated the long standing problem of relatively high youth unemployment (Figure 2.2). Moreover, there is just above 10% of young people who declare that they are neither employed nor in education and training – a share that is slightly higher than the average for the European OECD countries (OECD, 2010b). In addition, duration of unemployment increased further, and the share of long-term unemployed (more than 12 months) edged up to more than half of all unemployed (Figure 2.3). Since the crisis, unemployment among non-EU immigrants has increased by nearly a quarter, averaging 30.6% in 2010.

The higher unemployment rate was accompanied by a relatively modest fall in the vacancy rate, reflecting persistent labour market mismatches. During the 2000s, there was an outwards shift of the Beveridge curve. This probably reflects the impact of policies to activate older workers and the long-term unemployed, which made it more likely that these groups would report some job search and therefore be classified as unemployed in labour-force-survey statistics. On the other hand, the persistence of the outward movement of the Beveridge curve (Figure 2.4) reflects continuing difficulty in achieving effective transitions from the unemployment status into employment, particularly for the older-worker group that has been exempt from activation measures that applies to younger long-term unemployed.[2] Moreover, the intensive use of reduced working time schemes has not reduced mismatch problems, as the schemes have allowed firms to keep strong links with their (key) workers, contributing to a low level of unemployment turnover that is pushing up structural unemployment (De Serres *et al.*, 2011). Such mismatch problems needs to be addressed to maintain potential growth in the face of population ageing.

Figure 2.2. **Youth unemployment is relatively high**[1]

Percentage points change between 2008 and 2010



1. The lower and the higher limits represent respectively unemployment rates in 2008 and in 2010 except for Chile in Panel A, for Germany and Luxembourg in Panels A, B and C and for Slovenia in Panel C.
2. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD, *Labour Force Statistics Database*.

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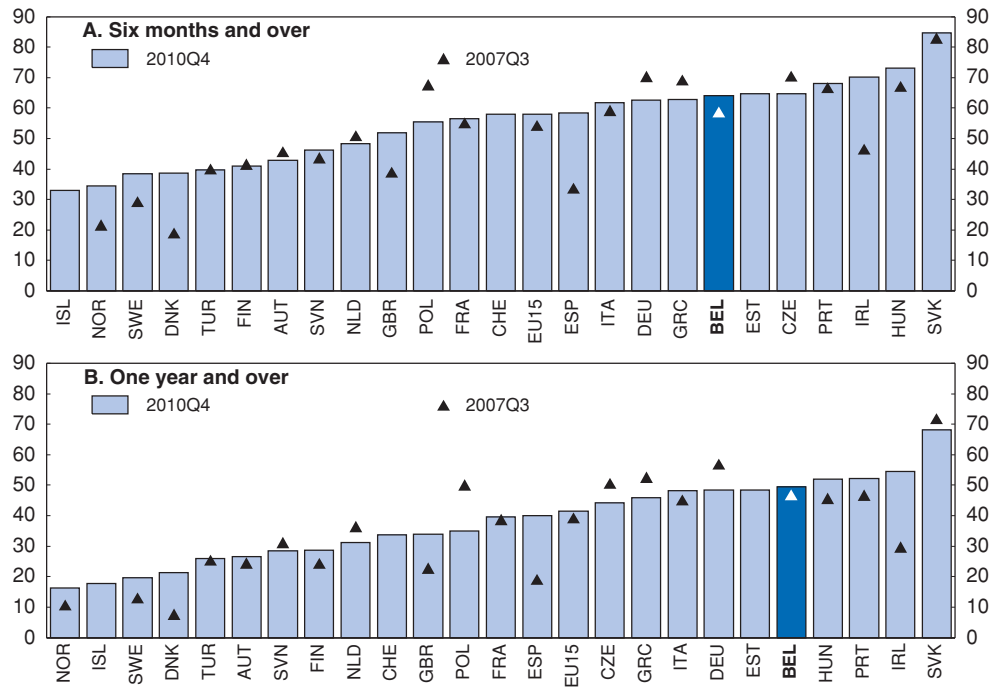
Figure 2.3. **Share of unemployed by duration**

As a percentage of total unemployed



Source: Eurostat.

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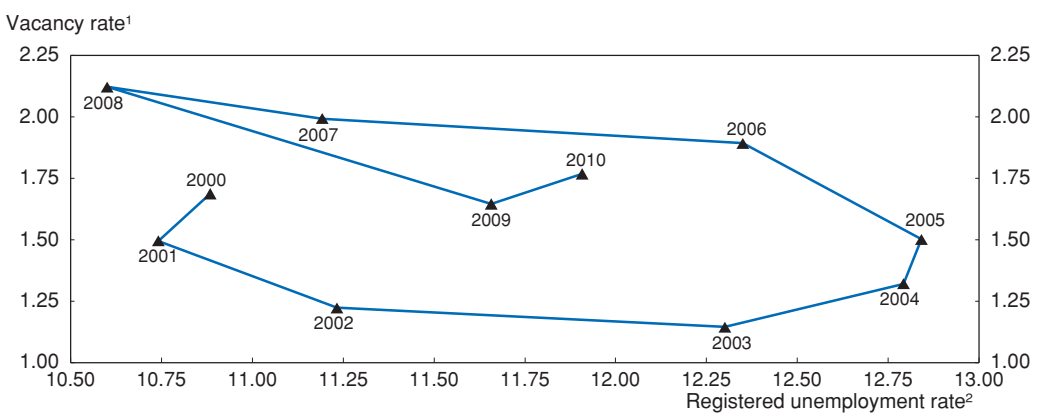
Figure 2.4. **The Beveridge curve has moved out**



1. The number of administrative job vacancies divided by the sum of the number of administrative job vacancies and the number of occupied posts.
2. As a percentage of labour force.

Source: OECD, *Main Economic Indicators* and *Labour Force Statistics Databases*; Belgian Federal Public Service for Employment, Labour and Social Dialogue calculations.

StatLink http://dx.doi.org/10.1787/888932459356

The anti-crisis labour measures should be scaled back as the economy recovers

A number of anti-crisis measures were implemented to support the labour market. Several measures reduced wage costs for certain categories of workers. Demand for younger workers was stimulated via the Win-Win plan from 1 January 2010 (and in place until end-2011) which introduced full or partial exemption from social security contributions for younger workers, where the degree of exemption depends on age, education level, and length of unemployment. The Win-Win plan also targets older unemployed and long-term unemployed. On the other hand, the planned reform to concentrate all reductions in employer's social contributions on low-wage workers by 2009 was not implemented. At the regional level, Flanders has increased wage subsidies for hiring most categories of older unemployed (+50 years) and Wallonia has increased provision of subsidised jobs for youth in SMEs, complementing the existing reduction in employers' social security contributions (for the first three young peopled hired) that benefits start-up firms.

Measures were also taken to strengthen job search incentives. Firms with more than 20 workers and that engaged in collective dismissals were required to provide counselling for all workers, including those on temporary contracts.[3] Wallonia introduced payments to cover child care and travel costs for low-wage workers. Flanders created work experience possibilities in 2010-11 for young long-term unemployed, and extended search obligations to newly registered unemployed in the age bracket 50-52. In spring 2011, this measure was further extended to the age bracket 53-55 and there are plans for a further extension to 58. Access to training programmes for the unemployed was boosted, particularly for workers in reduced working time schemes, and the training and guidance capacities of the Public Employment Services (PES) were increased. Nonetheless, there has only been limited vocational training of workers enrolled in the reduced working time schemes.[4]

The most important measure to contain the rise in unemployment was a substantial expansion of the existing reduced working time scheme for blue-collar workers, which in mid-2009 was supplemented with schemes for white-collar workers and workers subject to collective reductions (Box 2.1). The estimated number of jobs saved ranges from ½ per cent of private sector employment to 1¼ per cent of (permanent) employment (Hijzen and Venn, 2011; OECD, 2010). The scheme for blue-collar workers enables firms to temporarily suspend contracts of blue-collar workers when faced with unexpected adverse circumstances outside their control, such as bad weather or adverse economic conditions. Enrolled workers receive unemployment benefits for the non-worked hours and, in most cases, top-ups from their employers. During the crisis, total enrolment in the schemes almost doubled to reach an international high of nearly 6% of all employees (3% in full time equivalents) reflecting an average hours reduction of nearly 40% for those concerned (Figure 2.5).

The scheme for blue-collar workers saved a considerable number of jobs during the crisis. However, unlike in other countries enrolment is permanently high. Pre-crisis enrolment was actually equal to crisis levels in Germany and Italy (Figure 2.5). Moreover, about half of the pre-crisis budget was spent on workers who were enrolled for more than 40 working days, which appears long in the context of unexpected and temporary reductions in activity. Furthermore, the strong seasonality in the use of the scheme harmonises poorly with the stated aim of addressing unexpected adverse developments

Box 2.1. **The Belgian reduced working time schemes**

Three schemes are in place to reduce working hours during temporary slowdowns in economic activity. Employees may receive benefits up to 75% of their salary and sometimes a top up from the employer:

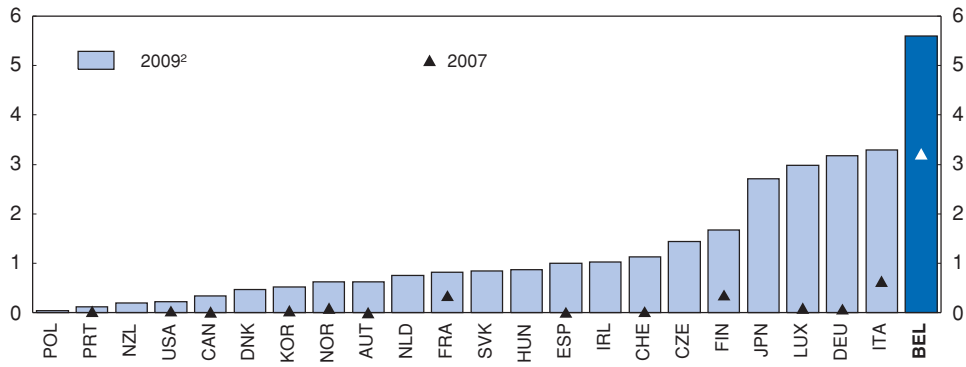
- The largest (permanent) scheme for blue-collar workers allows employers to suspend (partially or completely) wage contracts, *i.e.* stop remuneration but keep the workers on the pay-roll. The employer can make the decision about whether there is a need to use the scheme and must inform employees 7 days in advance about the degree and duration of the temporary reduced working hours – information that is transmitted to the union (via the "conseil d'entreprise") and the national employment office (ONEM). The ONEM may, if it observes a regular pattern in the use of this scheme by individual firms, decide that structural factors are at play and rule the firm ineligible. Duration ranges from 1 to 12 months, depending on the degree of partial unemployment.
- A second scheme for white-collar workers was introduced in 2009. It is similar to the scheme for blue-collar workers, although there needs to be a formal agreement with the unions at the firm or sector level. To use this measure, the employer needs to demonstrate a significant reduction in economic activity (either a 15% year-on-year decline in turnover, production or orders) or have at least 20% of its blue-collar workers on suspended contracts. The duration ranges from at least one week up to 4-6 months, depending on the degree of partial unemployment.
- A third temporary scheme was introduced in 2009 (and expired in early-2011) to allow employers to reduce working time for all employees within a collective agreement at the firm level – so-called collective reductions. A similar measure can be applied individually (via the so-called "*crédit-temps de crise*"). The employer is broadly subject to the same requirements as in the temporary scheme for white-collar workers. Duration is at least one month.

The take-up of reduced working time schemes nearly doubled between 2007 and 2009, both in terms of enrollment (reaching 215 000 in 2009) and the total number of hours subsidised. The budgetary costs nearly tripled to reach EUR 1 billion in 2009. The take-up in the schemes for white-collar workers and for collective reduction is more modest, involving about 900 and 4 100 persons in full time equivalents, respectively. Less than 10% of the participants participate in subsidised training as part of the scheme. The reduced working hours schemes have not been assessed.

(Annex 2.A1).[5] The scheme has few checks and balances to minimise dead-weight losses – particularly in terms of avoiding subsidising employment that are not at risk. For employers, the system is very flexible with short notification periods and significant discretion on permissible reductions, ranging from a few hours per week to temporary layoffs. Few other countries have the same degree of flexibility, where often the possibility of temporary layoffs are explicitly ruled out or schemes have to be applied to at least entire production units (Hijzen and Venn, 2011).The scheme helps employers to cope with the relatively strict employment protection legislation for collective dismissals, which requires procedures of an estimated average of 120 days.[6] In early 1990s, Belgium experienced problems with high enrolment in part-time unemployment, when about half of all part-time workers in the economy received benefits for involuntary part-time work. By 1992, the associated fiscal costs eventually led to the introduction of checks and balances (including

Figure 2.5. **Average monthly take-up rate of reduced working schemes in selected countries**[1]

Percentage of employees



1. Take-up is measured by the average stock of participants.
2. Data refer to 2009Q1, 2009Q3 for Austria, Luxembourg, the Netherlands, New Zealand, Portugal, the Slovak Republic and Spain.

Source: Hijzen, A. and D. Venn (2011), "The Role of Short-Time Work Schemes during the 2008-09 Recession", *OECD Social, Employment and Migration Working Papers*, No. 115.

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higher costs for employers and limitation in duration) which reduced the number of beneficiaries by 60% (OECD, 2003).

The sum of eligibility and conditionality requirements comes across as weaker than in other countries. Noticeably in term of eligibility requirements, employers only need to notify unions, unlike in many other OECD countries, where employers have to obtain an explicit agreement with the unions (Table 2.1). Such agreements often function as a screening device, as unions have to balance the temporary fall in income with the probability of maintaining income via an alternative employment, although the effect depends on replacement rates. For example, the German replacement rate of 60% means that the unions must accept a substantial income cut for their members. In comparison, Belgian monthly replacement rates (including employer top-ups) can reach nearly 100%, compared with the replacement rate in the unemployment benefit system of about 60% (Hijzen and Venn, 2011). Individual conditionality criteria tend to be similar to those in other countries, but collectively they come across as weak, implying a risk that the subsidy supports unviable jobs (Table 2.1). Unlike some other countries, Belgium does not require firms to provide compulsory training and recovery plans. Moreover, Belgian firms are allowed to dismiss enrolled workers without being required to pay-back received subsidies, whereas other countries do not permit dismissals during and immediately after enrolment. In addition, employees are not subject to job search requirements, minimising the risk for firms that their enrolled workers find alternative employment (Table 2.1). Such requirements help to minimise dead-weight losses, as they reduce displacement effects (such as supporting unviable jobs), upgrade human capital or promote labour mobility. Another benefit for employers of using the system is that they pay no social security contributions for non-worked hours, unlike in many other countries, even though such hours are included in the calculation of pension rights (Figure 2.6).

Reduced working time schemes entail a trade-off between cost-effectiveness (limiting dead-weight costs) and scale (restricting desirable take-up). The schemes have mostly

Table 2.1. **Eligibility and conditionality requirements for reduced work time schemes in the OECD**[1]

	Eligibility requirements			Conditionality requirements			
	Firm must provide justification of economic need	Social partner agreement	Participating workers must be eligible for UB	Compulsory training	Recovery plan	No dismissal	Job search requirement for employee
Austria	Yes	Yes	No	No	No	Yes	No
Belgium	**Yes**	**BC: No WC: Yes (or business plan)**	**No**	**No**	**BC: No WC: Yes**	**No**	**No**
Canada	Yes	Yes	Yes	No	No	No	No
Czech Republic	Yes	Yes	No	Yes	No	No	No
Denmark	No	Yes	No	No	No	No	Yes (when)
Finland	Yes	Consultation	Yes	No	No	No	Yes
France	Yes	Yes	No	No	No	Yes	No
Germany	Yes	Yes	Yes	No	No	No	Yes
Hungary	Yes	No	No	Yes	No	Yes	No
Ireland	No	No	Yes	No	No	No	Yes
Italy	Yes	CIGO: No CIGS: Consultation	No	No	Yes	No	No
Japan	Yes	Yes	Yes	No	No	No	No
Korea	Yes	Consultation	Yes	No	No	No	No
Luxembourg	Yes	Yes	–	No	Yes	No	No
Netherlands	No	Yes	Yes	Yes (or secondment)	No	Yes	No
New Zealand	No	Yes	No	No	No	Yes	No
Norway	Yes	No	Yes	No	No	No	Yes
Poland	Yes	Yes	No	No	Yes	Yes	No
Portugal	–	–	–	Yes	No	No	–
Slovak Republic	Yes	Yes	No	No	No	No	No
Spain	Yes	No	No	No	No	Yes	Yes
Switzerland	Yes	Individual agreement	No	No	No	No	No
Turkey	Yes	No	Yes	No	No	No	No
United States	Yes	Yes	Yes	No	No	No	No

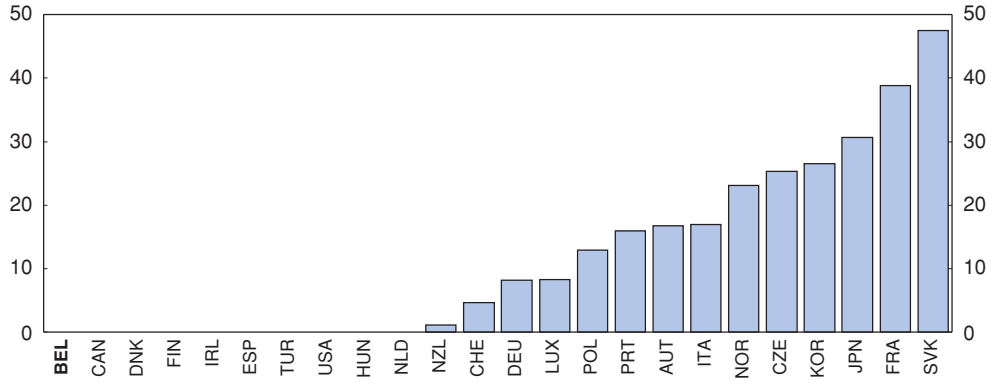
1. BC: blue collar; WC: white collar; CIGO: Cassa Integrazione Guadagni Ordinaria; CIGS: Cassa Integrazione Guadagni Straordinaria; UB: unemployment benefit.

Source: Hijzen, A. and D. Venn (2011), "The Role of Short-Time Work Schemes during the 2008-09 Recession", *OECD Social, Employment and Migration Working Papers*, No. 115.

benefited workers with permanent contracts, pointing to potential deeper labour market segmentation. In addition, by allowing firms to keep their key workers the schemes have probably added to labour market mismatches. Thus, the introduction of appropriate checks and balances could preserve the effectiveness of the system, but at a significantly lower cost, while improving labour resource utilisation and allocation (OECD, 2009a). A starting point should be to align the checks and balances in the system for blue-collar workers with the, more stringent ones embodied in the other schemes, rather than the reverse as stipulated in the 2011-12 wage agreement. Thus, firms should demonstrate a significant temporary drop in activity and enrolment in the scheme should be subject to approval by the labour market authorities. Re-entry into the schemes should be restricted within a given time horizon, such as the following year, to encourage firms to adopt new production planning, processes, and technologies.

Figure 2.6. **Wage cost to employer for hours not worked**

As a percentage of normal total labour cost[1]



1. For a single worker without children who usually earns the average wage.

Source: Hijzen, A. and D. Venn (2011), "The Role of Short-Time Work Schemes during the 2008-09 Recession", *OECD Social, Employment and Migration Working Papers*, No. 115.

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An important check and balance would be to increase the cost for employers of using the system to secure that only firms exposed to temporary shocks would use the system and to give firms incentives to leave the system as soon as possible. Thus, employers should pay social security contributions for non-worked hours and the benefits for an initial enrolment period. This should be backed with – in line with the Dutch approach (OECD, 2010) – the (partial) repayment of received subsidies if enrolment workers are subsequently fired. To avoid "parking" key workers that may be in demand in other sectors, enrolled workers should – as are other unemployment beneficiaries – be available for hiring in other firms via the PES, who should also monitor and enforce availability. In case of prolonged enrolment, it could be considered to make enrolled workers subject to standard job search requirements. To secure that the system is only used for temporary shocks, there should be a cap on enrolment periods. Currently, employees have little incentives to refuse participation, even if they are aware that the firm is exposed to more structural issues. This could be corrected by having employees sharing a larger part of the costs, for example through reducing benefits over time or the banning of top-ups from the employer. This would increase search incentives for alternative employment and thus facilitating reallocation of labour.[7] In view of the problems of fiscal sustainability problems, closer parliamentarian oversight could be secured by making the reduced working time schemes budget dependent. In practise, this would mean that the relevant ministry would have to present a new bill to parliament to secure additional funding, which would at least highlighten the need for structural reform in case of ballooning fiscal costs.

The government should focus on making the labour market more inclusive

Over the medium-term, the main challenge for labour market policies is to mobilise available labour resources to replace the increasing – due to population ageing – number of retiring permanent contract workers. This requires reforming labour market institutions to strengthen the labour market attachment of outsiders and enhance labour market participation incentives. There has been an increasing focus on earlier activation, but nevertheless available public funds are still focussed on job creation and employment

incentives, while training and activation resources at the PES play a less important role (Table 2.2). The focus on job creation and employment incentives may be needed in the context of the high minimum wage, although this is arguably a second-best use of funds.

Table 2.2. **Public expenditure on labour market programmes**

As a percentage of total expenditure on active measures, 2008

	Belgium	EU15[1]	EU19[1]
PES and administration	15.40	27.60	29.40
Training	12.30	26.70	23.50
Employment incentives	35.50	19.50	18.40
Supported employment and rehabilitation	9.60	11.80	13.10
Direct job creation	26.80	11.10	11.10
Start-up incentives	0.30	2.60	4.00
Total expenditure on active measures (% of GDP)	1.28	0.78	1.10

1. The EU15 and EU19 aggregates are unweighted averages and exclude Greece.

Source: OECD, *Labour Market Programmes Database*.

Activation policies, are still applied late in the unemployment spell

Reforms in the second half of the 2000s have introduced a step-wise activation of unemployment benefit receivers. A first letter about job search obligations is sent out during the 13th month of unemployment (7th month for young unemployed). The first interview occurs about 8 months later (*i.e.* after 21 months of unemployment). If it is unsatisfactory, it leads to an action plan contract with specific steps in the following four months. If these steps have been followed, a next interview will be scheduled for 12 months later; otherwise an additional action plan is offered. Non-compliance with the new action plan leads to sanctions (partial or permanent suspension of benefits). This is complemented by regional guidance and job matching measures, that starts earlier in the unemployment period.

Between 2004 and 2010, nearly 630 000 interviews were conducted and close to 70 000 sanctions (of which nearly 20 500 exclusions) were issued (Table 2.3). The use of sanctions is supplemented by enhanced regional activation policies, focusing on individual guidance and contracting, job offers, and with special emphasis on young and older workers.[8] The policy has had positive results, as the first notification increases transition rates into employment, by around 6 and 10 percentage points in Wallonia and Flanders, respectively, to 28% and 22% (although often to lower paid and relatively short-term jobs) (Cockx and Dejemeppe, 2010). Nevertheless, the slow pace of intervention reduces the effects of the programme (De Serres *et al.*, 2011) and sanctions are mainly applied to long-term unemployed with low transition into the labour market, implying that most eventually return to the system or transfer to social assistance benefits. Combating long-term unemployment therefore requires that activation be applied much earlier (at the latest after 6 months of unemployment) and be backed up with earlier sanctions, say after 9-12 months of unemployment. The success of such a reform depends on the capacity of regional employment services to provide employment assistance and referrals to job vacancies.

Table 2.3. **The use of sanctions has increased**[1]

Per cent

	Flanders	Wallonia	Brussels	Total
2003	1.66	0.08	0.65	0.78
2004	1.64	0.10	0.90	0.83
2005	2.03	0.20	1.42	1.11
2006	3.32	1.36	1.16	2.05
2007	6.92	2.51	2.02	3.92
2008	6.98	3.61	2.23	4.48
2009	4.47	4.66	2.27	4.17
2010	2.57	5.15	3.00	3.81

1. The sanction rate is the number of sanctions relative to the relevant group of unoccupied jobseekers (composed by fully unemployed jobseekers receiving compensations, unoccupied jobseekers who must be registered and unoccupied jobseekers freely registered).

Source: National Employment Office (ONEM).

Young unskilled people have difficulties in finding a foothold on the labour market

Activation policies are often aimed at young unemployed. Nonetheless, their unemployment rate continued to increase during the 2000s to an internationally high level (Box 2.2) (Figure 2.2). This partly reflects an inherent limitation on the ability of the PES to place young workers, as employers consider unsolicited applications and recommendations from other workers as a signal of greater motivation and thus more attractive than referrals from a PES (Bonoli and Hinrichs, 2010). School leavers (particularly those with less than upper secondary education) can expect shorter periods of employment during the first five years after leaving school than in most other OECD countries – reflecting educational attainments that do not match the needs of the labour market with prevailing high minimum wages (see below) – and accentuated by low geographical mobility (Jousten *et al.*, 2008) (Figure 2.7).

Apprenticeship schemes, internships (or other systems to mix school, training and work) and small hours student jobs are not well developed, implying in most cases an abrupt transition from education to work. Co-ordinating policies to secure a smoother transition is difficult, as the communities are responsible for education, the regions for employment and professional training, and the federal government for labour legislation, collective agreements and social security (OECD, 2007). Young people's employment prospects are also reduced by the widespread use of the LIFO (last-in first-out) firing principle and relatively short average trial periods for new hires (Figure 2.8). Standard trial periods should be extended to allow employers more time to assess capabilities and skills of new hires with a limited employment record, for example to levels observed in countries with traditionally high employment rates for young people, such as Denmark, Ireland, and the United Kingdom.

High unemployment rates for young people can also be traced to a combination of relatively high statutory minimum wages and relatively generous unemployment benefits (particularly for those still living with their parents) (Figure 2.9). The high statutory minimum wage drives a wedge between the costs of young low-skilled workers with little previous work experience and their productivity, while generous benefits push up their reservation wages. Statutory minimum wages for younger workers (less than 21 years) is phased in relatively fast (from 70% of the minimum adult wage at age 16 to 94% by the age of 20) to reach an internationally high level (Immervoll and Pearson, 2009; OECD, 2010). It is

Box 2.2. **Activation policies for young people**

Active labour market policies have gradually become more focused on young job-seekers (OECD, 2010b). Since the mid-2000s, school leavers registered with the PES have to be activated.

In Flanders, early and intensive activation was introduced by the 2004 Youth Work Plan, where all young job seekers (less than 25 years) enrolled with the PES (VDAB) are immediately offered job referrals and guidance through e-instruments as a function of their employability and not (as previously) on their level of education. After one month there is an evaluation and those without job referrals will be contacted by telephone. If necessary they are invited for an interview. After three months, young job seekers have to sign individual action plans, containing job-search assistance, training and re-employment programmes.

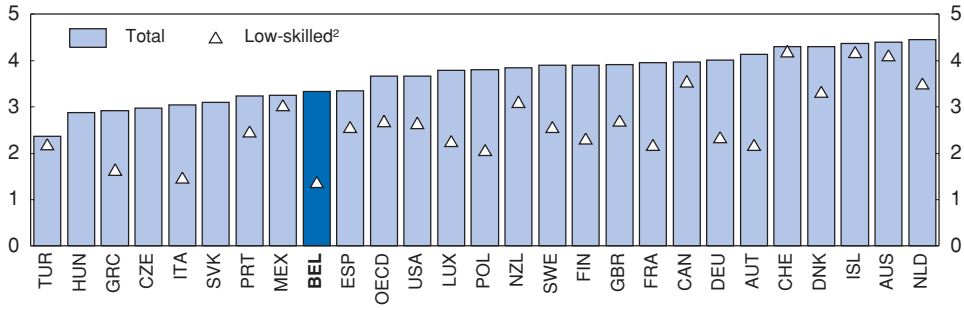
In mid-2007, the Walloon PES (FOREM) introduced the Job Tonic programme with intensive tailored-made guidance and counseling for young job-seekers without an upper secondary qualification during the first six months after leaving school. In mid-2008, this programme was extended to include job-seekers with upper secondary qualifications.

In Brussels, school leavers that register with the PES (Actiris) are systematically invited for an interview to elaborate an action plan. Such plans for low-skilled workers are typically signed within one or two weeks.

The success for these programmes hinges on the ability to secure early enrolment, particularly for disconnected youth, in remedial education measures. One way of assuring this is, as in the Netherlands, to make local authorities responsible for work/learn positions that has to be presented before passive income support can be offered. In 2009, legal rights and obligations for local authorities and young people were introduced (OECD, 2010b).

Figure 2.7. **Expected number of years spent in employment during the five years after school**[1]

2008



1. In the EULFS, individuals report on the year they obtained their highest degree. The respondent is no longer a student, this information is used to compute the durations underlying the indicator. In HILDA, respondents report on the number of years that have elapsed since they left full-time education. That information is used to compute durations, again conditional on the respondent no longer being a student. A similar methodology is used for Mexico and Canada. For the United States the typical age at which a degree is obtained is used to reconstruct a duration variable. Data refer to 2006 for Australia.
2. Less than upper secondary education.

Source: European Union Labour Force Survey (EULFS); Melbourne Institute, Household, Income and Labour Dynamics in Australia Survey (HILDA), Release 6 for Australia; Labour force survey for Canada; Encuesta Nacional de Ocupación y Empleo for Mexico; Current Population Survey for the United States.

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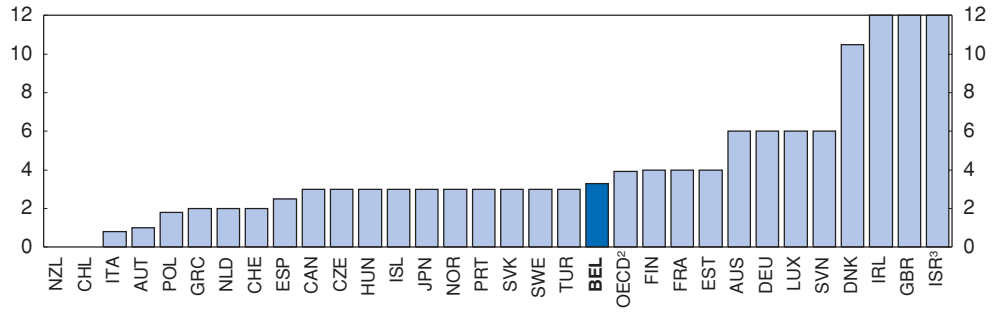
Figure 2.8. **Trial-period length**

Months, 2008[1]



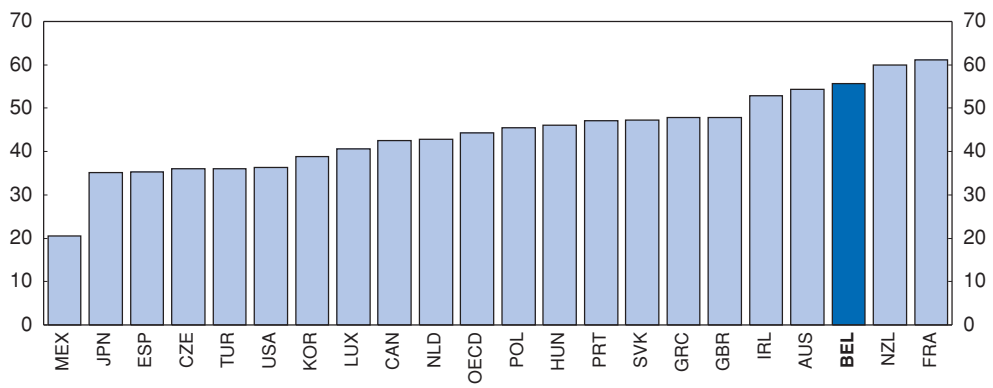
1. For France and Portugal, data refer to 2009.
2. Unweighted average of countries above.
3. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: Venn (2009), "Legislation, Collective Bargaining and Enforcement: Updating the OECD Employment Protection Indicators", *OECD Social, Employment and Migration Working Paper*, No. 89, Paris.

StatLink http://dx.doi.org/10.1787/888932459432

Figure 2.9. **Statutory minimum wages are relatively high**[1]

As a percentage of median wage, 2008



1. Data refer to the gross wage, which does not take into account potential social contribution exemptions. Data refer to 2007 for Mexico and to 2006 for Turkey.

Source: OECD (2010), *Off to a Good Start? Jobs for Youth.*

StatLink http://dx.doi.org/10.1787/888932459451

noticeable that in the Netherlands the phase-in is much slower and youth employment much higher, as the former has contributed to increase the availability of small hours jobs. In some recent wage agreements, these phase-ins were abolished altogether – effectively hampering the hiring of younger low-skilled workers. Moreover, the standard statutory minimum wage concerns only a relatively small part of the employed (1.1%) as everyone else is covered by sectoral minimum wages, which often are about one fifth higher (OECD, 2009a).[9]

Minimum wages need to be brought into line with the productivity levels of low-skilled young job seekers/labour market entrants, requiring that the sectoral minimum wages are aligned with the statutory minimum wage.[10] This would not only enhance the employment chances of low-skilled workers, but the associated increase in the wage

differential boost the scope for low-skilled workers to price themselves into the labour market. For workers younger than 21 years, a more gradual phasing in of the minimum wage ensures that their wages and productivity developments are better aligned. Alternatively (sectoral) entry wages should be introduced, applicable to workers (re-)entering employment – a measure that ensures that insiders preserve their wages, while facilitating the transition for workers with weak labour market attachment into employment.

Despite recent measures to promote internships and apprenticeships, there are still institutional factors hampering school-to-work transition (Box 2.3). School leavers who register with the regional PES get the right to the so-called waiting allowance, an unemployment benefit (about 50% of the ordinary minimum unemployment benefits) linked to age and the level of studies for an unlimited period after a waiting period of 6-12 months. Thus in the early stages of unemployment school leavers have considerable search incentives, but these are reduced once the waiting allowance kicks in.[11] In most

Box 2.3. **Recent measures to facilitate the school-to-work transition**

Within the Belgian "study first, then work" model, recent measures have focused on promoting internship opportunities rather than encouraging student work.

In the Brussels region, the PES (Actiris) created in 2009 a database of internships and student jobs proposed by firms.

In Wallonia, an agreement has been reached to generalise internships and dual training and modularisation in vocational and technical secondary education in 2009-14. Some short cycle tertiary education programmes will have compulsory internships from September 2011 onwards.

In Flanders, internships in vocational and technical secondary education are now strongly recommended. In the Competence Agenda 2010, the social partners have committed themselves to create 75 000 workplacements per year for pupils in technical and vocational secondary education and 30 000 workplacements over a period of five years for teachers of practical and technology education. Since 2009, new programmes in the short cycle of tertiary education have compulsory internship.

The federal government reduced social security contributions in 2010 by EUR 400 per quarter for employers who have mentors for interns, apprentices or vocational education training teachers.

The OECD general recommendations to improve the effectiveness of vocational education and training (VET) policies include (OECD, 2010b):

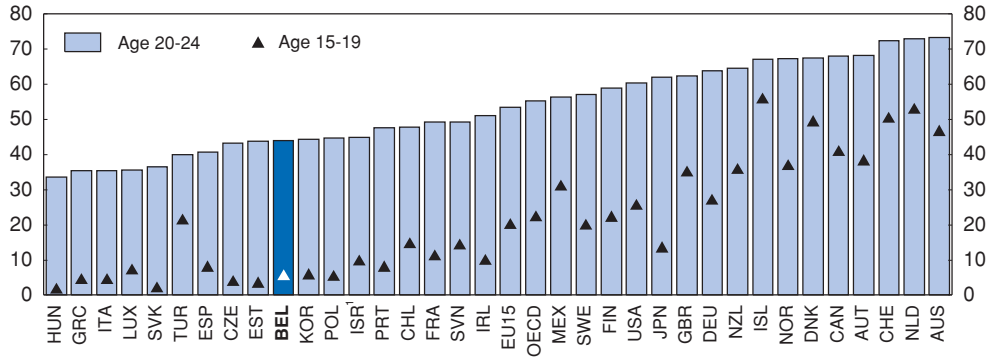
- Provide a mix of VET programmes that reflect student preferences and employer needs through an apprenticeship system based on balancing supply and demand through a market.
- For VET beyond secondary level, share the costs between government, employers and individual students according to benefits obtained.
- Engage employers and unions in curriculum development and ensure that the skills taught correspond to those needed in the modern workplace.
- Provide young people with the generic, transferable skills to support occupational mobility and lifelong learning, and with occupational-specific skills that meet employers' immediate needs.

OECD countries school leavers cannot receive unemployment benefits on the basis of their diploma and when they can (Denmark, Greece, Luxembourg and the Czech Republic) there is a well-defined bound on the duration. Search incentives for school leavers would be enhanced by abolishing the waiting allowance, or if it is retained be strictly limited in time, to school leavers (for example making it only available for school leavers younger than 26) and conditional on search activity. This could be combined with early job search assistance, preferably upon registration with the PES. Special measures should be available for school drop-outs, such as non-class remedial support to acquire relevant job market skills, like computer and basis technical qualifications.

The mandatory school leaving age is 18, well above standard age of 15 and 16 in most other OECD countries. In addition, there are few possibilities for younger people to gain workplace experience prior to leaving school. Vocational education (starting at age 16)[12] is poorly developed and mostly for unsuccessful students. Employment during school breaks is encouraged by a holiday-time exemption from social security contributions.[13] In all, both the employment rate for 15-19 (including apprenticeships) and the share of students combining study and work is relatively low – and with a particularly large gap in unemployment and employment rates between low-skilled and other youth (OECD, 2010) (Figure 2.10).

Figure 2.10. **Employment rates of youth**

Per cent, 2010



1. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD, *Labour Force Statistics Database*.

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International evidence indicates that school-to-work programmes boost labour market attachment, skill formation, wages, and earnings (OECD, 2010b and Neumark, 2009). Also Belgian evidence indicates that short-term jobs for long-term unemployed school leavers can act as a stepping stone to more permanent jobs (Cockx and Picchio, 2009). Thus, student jobs, small hours jobs, internships and apprenticeships may help to break the cycle of "no job no experience; no experience no job". However, there appears to be a scarcity of small-hours jobs as relatively few young people work in service sectors, which have many part-time job opportunities. In addition, working time rules are likely to hinder the supply of small hours jobs, as the minimum length of working time has to be at least 3 consecutive hours and a part-time job must be equal to at least one third of a full

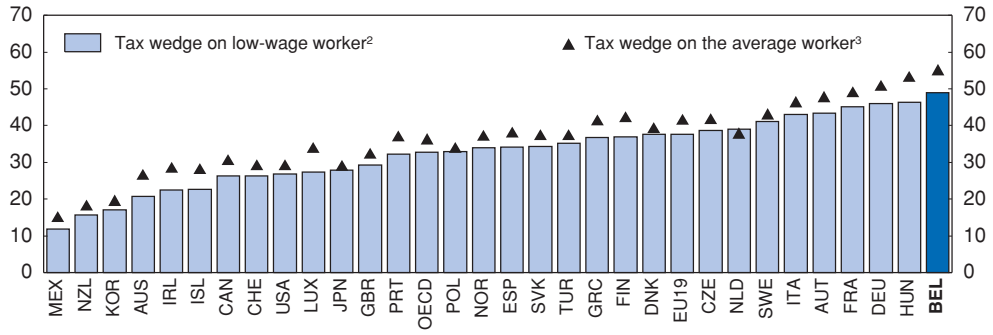
time position, although a number of sectoral agreements (particularly in service sectors) include derogations. The availability of small hours jobs could be stimulated by a better alignment of wages and productivity and a removal of restrictions on part-time working time rules. The special holiday exemption seems largely superfluous, as all low-income workers are exempt from social security contribution, and hence it should be abolished. Recent reform in this area abolished the holiday requirement and allows student to work for a maximum of 50 days per year.

High effective marginal tax rates and generous benefits undermine work incentives

Belgium has some of the highest tax wedges among the OECD countries, calling for deeper reform of the social security and tax systems (Figure 2.11). Low income workers have particularly high effective marginal tax rates in excess of 80%, arising from employment induced withdrawal of social transfers combined with high personal income taxation, greatly undermining work incentives (OECD, 2009a). Reforms to boost labour demand for low-skilled have mostly aimed at reducing labour costs via targeted cuts in employers' social security contributions. As also other categories of workers, such as young, older, low income, R&D, and shift- and night workers, have benefited from similar cuts, the result is a poorly targeted system with considerable dead-weight costs (OECD, 2009a). Plans to simplify the system and focus reductions on low paid workers have not been implemented so far due to the prolonged coalition negotiations. A recent report from the Federal Planning Bureau indicates a lowering of social security charges for low-income workers could boost employment by some 50 000 over the medium term, but at a financial cost in excess of 1% of GDP (Bassilière *et al.*, 2007). Possible reform of the social security contributions to improve tax incentives are discussed in Chapter 1.

Figure 2.11. **Tax wedge including employer's social security contributions in OECD countries**[1]

As a percentage of gross income, 2009



1. OECD and EU19 aggregates are unweighted averages.
2. Tax wedge including employer's mandatory social security contributions for a single worker with no children earning 67% of the average wage, excluding social security reduction.
3. Tax wedge including employer's mandatory social security contributions for a single worker with no children earning the average wage, excluding social security reduction.

Source: OECD (2010), *Off to a Good Start? Jobs for Youth.*

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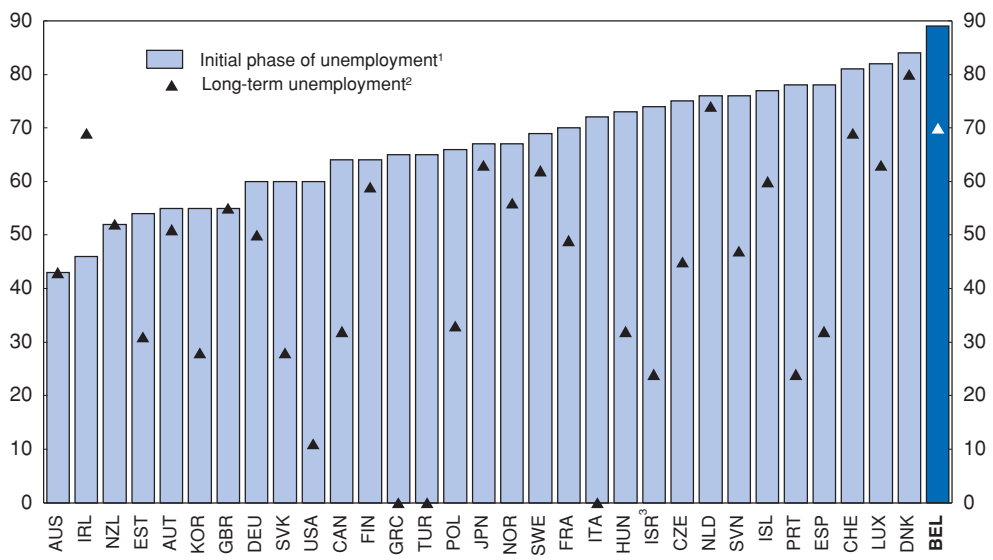
The combination of high statutory minimum wages and generous unemployment benefits raises long-term unemployment risks and constitutes a particular problem of young low-skilled unemployed with little on-the-job experience. The unlimited duration of

unemployment benefits provides few search incentives. Both international evidence[14] and Belgian research indicate that job-search activity increases as benefits are terminated. In Belgium, all categories of unemployed have unlimited duration of unemployment benefits. The only exception (until 2004) was unemployed with abnormally long unemployment spells and with working partners. Notification of benefit termination for this category boosted their employment rates by up to 25 percentage points during the following 14 months (Cockx and Ries, 2004). In addition, the initial replacement rate for low-income workers is among the highest in the OECD. The replacement rate is also relatively high for long-term unemployed (Figure 2.12). In 2009, first-year benefits were increased, providing for some dynamic search incentives when benefits return to their previous level after one year (OECD, 2008). Income support was further boosted in early 2010 with the introduction of a one-off tax free payment (max EUR 1 666) to laid off blue-collar workers (OECD, 2009a). Nonetheless, job search incentives could be strengthened further by introducing a limit on duration (for example 24 months) and by reducing benefits over that period until they reach the level of social assistance.

Figure 2.12. **Net replacement rates for a single person without children in OECD countries**

With pre-unemployment earnings at 67% of the average wage, 2009



1. Initial phase of unemployment but following any waiting period. No social assistance "top-ups" are assumed to be available in either the in-work or out-of-work situation. Any income taxes payable on unemployment benefits are determined in relation to annualised benefit values (*i.e.* monthly values multiplied by 12) even if the maximum benefit duration is shorter than 12 months.
2. After tax and including unemployment benefits, social assistance, family and housing benefits in the 60th month of benefit receipt.
3. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD, *Tax-Benefit Models*.

StatLink http://dx.doi.org/10.1787/888932459508

Immigrants have a relatively poor labour market performance

Workers with immigrant background have not only been relatively hard hit by the crisis, but represent a large underutilised labour resource. In all, more than 12% of the population has an immigrant background (first and second generation) and about a quarter of all teenagers have at least one foreign-born parent – one of the highest shares among the European OECD countries. Furthermore, immigrants from outside the EU (non-nationals) have one of the worst labour market outcome in the EU with a lower employment rate than nationals and an unemployment rate three times higher than for nationals (Tables 2.4, 2.5 and Figure 3 in A&R).[15] The high unemployment rate among immigrants is to some degree boosted by Belgian specific characteristics, such as the high youth unemployment rate, as 55% of non-EU immigrants are 15-34 years as compared with 38% of Belgian born citizens. Employment rates for all youth in the age cohort 20-24 are low, but remain low for non-EU immigrants throughout their working lives unlike the situation for Belgian and EU citizens, for whom the employment rate for the next age cohort is already at par with the national level.

Table 2.4. **Employment rates for nationals and immigrants**

As a percentage of corresponding working age population, 2009

	Brussels	Flanders	Wallonia	Belgium	EU27
Nationals	55.4	66.3	57.2	62.5	65.0
EU citizens	63.1	64.8	52.8	59.6	68.0
Non-EU citizens	38.8	44.5	28.9	38.8	55.7

Source: EC, Directorate-General for Statistics and Economic Information (DGSEI).

Table 2.5. **Unemployment rates for nationals and immigrants**

As a percentage of corresponding active population, 2009

	Brussels	Flanders	Wallonia	Belgium	EU27
Nationals	15.1	4.5	10.5	7.1	8.4
EU citizens	10.3	8.6	13.8	11.1	11.6
Non-EU citizens	33.0	21.6	38.9	29.4	19.4

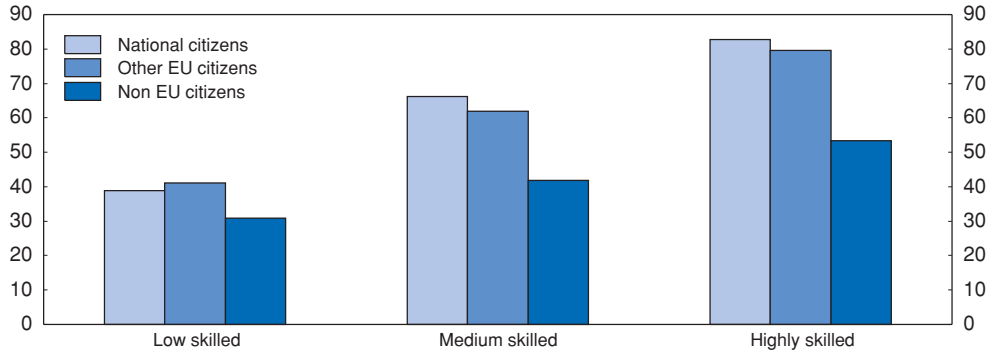
Source: EC, Directorate-General for Statistics and Economic Information (DGSEI).

Immigrants have relatively low educational attainment; about half of them are low-skilled, compared with less than one-third of natives. The OECD PISA study shows that the educational disadvantage of second generation immigrants is larger than elsewhere. Moreover, the educational qualifications of immigrants are often discounted in the labour market, and the employment rates for medium and highly skilled workers are much lower than for Belgian natives with similar education background (Figure 2.13). An additional problem for well educated immigrants is that many highly qualified civil servant jobs in the public sector are restricted to EU citizens.

The educational achievement of Belgian pupils is in the top 10 in the most recent PISA study (OECD, 2010c). The performance gap of pupils with immigration background (and controlling for socioeconomic factors) *vis-à-vis* other pupils has narrowed over the past decade, but remains larger than the OECD average. Pupils with immigration background are twice as likely as other pupils to be in the bottom quarter of students, even though Belgium is relatively good at allocating additional teaching resources to socioeconomically

Figure 2.13. **Employment rates by nationality and educational attainment**[1]

As a percentage of working age population, 2009



1. Low skilled refer to pre-primary, primary and lower secondary education, medium skilled refer to upper secondary education and post-secondary non-tertiary education and highly skilled refer to tertiary education.

Source: Directorate-General for Statistics and Economic Information (DGSEI), "Labour Force Survey 2009".

StatLink http://dx.doi.org/10.1787/888932459527

disadvantaged schools. However, these additional resources are not sufficiently targeting immigrant areas. Principals for schools in high immigrant areas report more frequently than in most other countries that insufficient educational resources hinder learning (OECD, 2010c). Targeting more resources to students with immigrant backgrounds could narrow disparities in educational attainment and help to better integrate such students in society.

A main problem is often a lack of language proficiency. Participation in pre-primary education strengthens immigrant children's language ability, leading to improved educational performance and employment probabilities (OECD, 2010d). In this respect, the new legislation mandating pre-school education of immigrant children is a welcome measure – an area that was previously poorly developed (OECD, 2008). For new arrivals who enrol in the school system, there are special "welcome classes", lasting for less than a year and targeting pupils less than 18 years, although language courses are mandatory only in Flanders. Arriving adults often receive language courses only a year after arrival. Early language education should become mandatory, and for new arrivals language courses should be offered upon arrival and be available for a sufficient long time to secure adequate language skills.

The Belgian education system is characterised by early streaming of pupils into an "upper" academic stream aimed at students that are expected to pursue further studies and a "lower" vocational and technical stream. The first streaming at age 12 tends to steer pupils with immigrant background into the lower vocational stream. The next streaming at age 14 tends to steer them into a technical orientation with few subsequent possibilities to move upstream. Students tend to see the vocational track as a dead-end with relatively little value in the labour market (OECD, 2009a). Remedies in this area should include improving the quality of the vocational track, facilitating later streaming, and improving the possibilities for moving to a higher track at a later stage.

The successful integration of immigrants is complicated by immigration policy being a federal responsibility, labour market integration a regional responsibility, and integration and education policies community responsibilities. There is little interaction among key actors, both within but especially between government levels, and policies are seldom targeted specifically at immigration. Such general measures may help immigrants as

witnessed by the service vouchers (aimed at boosting demand for household services) that have boosted employment of immigrants by individual households. Regular national integration reports to identify good and bad practices could help to improve transparency and co-ordination and help to develop a coherent economic immigration policy (OECD, 2008). More generally, the main problem for many workers with immigrant background is to find a first job as they have to overcome prejudices and discrimination – less important factors once immigrants have had to opportunity to demonstrate ability (Bisin *et al.*, 2011). This suggests that reforms that aim at making the labour market more flexible are particularly beneficial for the labour market integration of workers with immigration background (OECD, 2009a and 2010).[16] Similarly, low-skilled immigrants can be expected to benefit from better targeting of demand-side barriers, such as wage subsidies and targeted reductions of social security contributions to low-wage workers.

The wage determination process has not preserved international cost competitiveness

The wage determination process aims at preserving international competitiveness and protecting workers' purchasing power. Nonetheless, wages have increased faster than in neighbouring countries and real wages have outpaced domestic productivity. Wages are determined in a highly co-ordinated wage negotiation system with a wage norm for maximal wage increases (with the upper limit determined by the expected wage developments in Germany, France, and the Netherlands) and a lower bound of expected price developments. Agreed wage increases are subsequently implemented in sectoral wage agreements (covering more than 90% of all employees). A result is rigid real wages, which forces firms to adjust labour costs via labour inputs, explaining the high take up of reduced working time schemes and the encouragement of older workers to leave (on early retirement) so they can be replaced by cheaper (because of the strong seniority element in wages) younger workers (Babecky *et al.*, 2009). *Ex ante*, the setup should secure wage developments that are in line with trading partners. *Ex post* this is not the case, as the automatic indexation of wages to the health index (the consumer price index less transport fuels, tobacco and alcohol items) have ensured that unexpected inflation has been translated into higher wages. Since 1996, an accumulated hourly wage gap of about 4% *vis-à-vis* the main trading partners has opened up (Conseil Central de l'Économie, 2010). Over the same period, an even larger hourly productivity gap of 5½% has opened up, leading to accumulated competitive losses in terms of unit labour costs of nearly 10%. For the business sector ¾ of the accumulated loss in competitiveness is due to relative weak productivity developments (NBB, 2011).

The wage agreement for 2011-12 stipulates a real wage increase of zero in 2011 and only 0.3% in 2012. As accumulated expected price increases were 3.9 percentage points higher, accumulated expected nominal wage growth is correspondingly higher. Subsequently, the health index projections have been revised up to 5% over 2011-12, implying that total accumulated nominal wage increases are expected to reach 5.3% under the assumption of zero wage drift. Not all social partners accepted the agreement and the government subsequently passed it into law with some modification, including the introduction of a (in-) working bonus of EUR 10 net per month for the lowest income workers. During the negotiations, the social partners initially agreed to study the effects of wage indexation (an idea that was subsequently abandoned), reflecting increasing concerns about possible negative effects of the system, particularly as a number of service

prices are indexed to general price developments. The government has decided to change the indexation formula (lower frequency of tariff changes) for gas and electricity contracts to assure less volatile energy prices and has requested the energy regulator to increase market surveillance. Nevertheless, the current high oil and raw material prices may yet again be (partly) absorbed in relatively higher wages, threatening further erosion of external competiveness.

The agreement also gradually (only for new hires) harmonises dismissal notification periods for blue- and white-collar workers (aiming at a general rule of one month pay for each year worked) implying shorter periods for white-collar workers and longer for blue-collar workers. More importantly, the alignment of reduced working time schemes may lead to a structural increase in enrolment, which has to be financed by the federal government. Also the previous wage agreement contained measures that increased federal financing (Box 2.4) (OECD, 2009a). The one-day wait for receiving sickness benefits for blue-collar workers was also suppressed in the agreement.

Box 2.4. **Reductions in employers' social security contributions in 2009-10**

To offset the impact on labour costs of the negotiated wage increases, the rebate on the withholding tax on wages was increased in 2009-10. These rebates do not affect wage earners' personal income tax liability. Thus, the rebate acts as a wage subsidy.

- The general rebate granted to all firms was increased from 0.25% of gross wages to 0.75% in July 2009 and to 1% in January 2010.
- The rebate for night and shift work was raised from 10.7% to 15.6%.
- The rebate for researchers was raised from 65% to 75%.
- The number of overtime hours that qualify for a rebate in charges was increased from 65 to 100 hours in 2009 and again to 135 hours in 2010.

At the end of 2009, reductions in labour costs amounted to EUR 1.7 billion or 1.2% of the private sector wage bill (Table 2.6). According to the national account definitions as drawn up in the ESA95 rules, these are not treated as direct reductions in labour costs, but as subsidies. Thus from a statistical viewpoint, these measures do not reduce labour costs despite their effect in real life. If these cost reductions had been taken into account in calculating the increases in labour costs per hour worked, then the increase would have been 0.4 percentage point lower in 2009 and with a similar impact in 2010.

Table 2.6. **Wage subsidies granted by increasing the rebate on the withholding tax on wages**

Millions of euros

	2004	2005	2006	2007	2008	2009
Total reductions *of which*:	25	110	455	834	1 223	1 687
General reductions	0	0	0	53	208	470
Shift and night work	25	95	343	606	697	756
Researchers	0	4	63	90	193	340
Overtime	0	11	24	33	37	24
Share of private sector wage bill	0	0.1	0.4	0.6	0.9	1.2
Impact on private sector labour costs per hour	0	–0.1	–0.3	–0.3	–0.3	–0.4

Source: National Bank of Belgium.

The wage norm law stipulates that past overshooting of wage developments should be recovered in the subsequent wage period. The scope for negotiations in the 2011-12 agreement was limited to 1% by the system's upper bound on expected wage developments in France, Germany, and the Netherlands and it's lower bound on expected domestic price increases – not taking into account past overshooting. The agreement implies – in the absence of inflation surprises – that Belgium wages should grow an accumulated ¾ per cent less than in the neighbouring countries – a relatively minor improvement in relative wages considering the accumulated loss in cost competitiveness. Indeed, even no change in real wages would restore lost international competiveness only over a very long period. On the other hand, the employment gains of recuperating the lost external wage competitiveness would be considerable. Closing the wage gap could generate an additional 48-83 000 jobs (Bureau du Plan, 2010; Abraham and Konings, 2010).

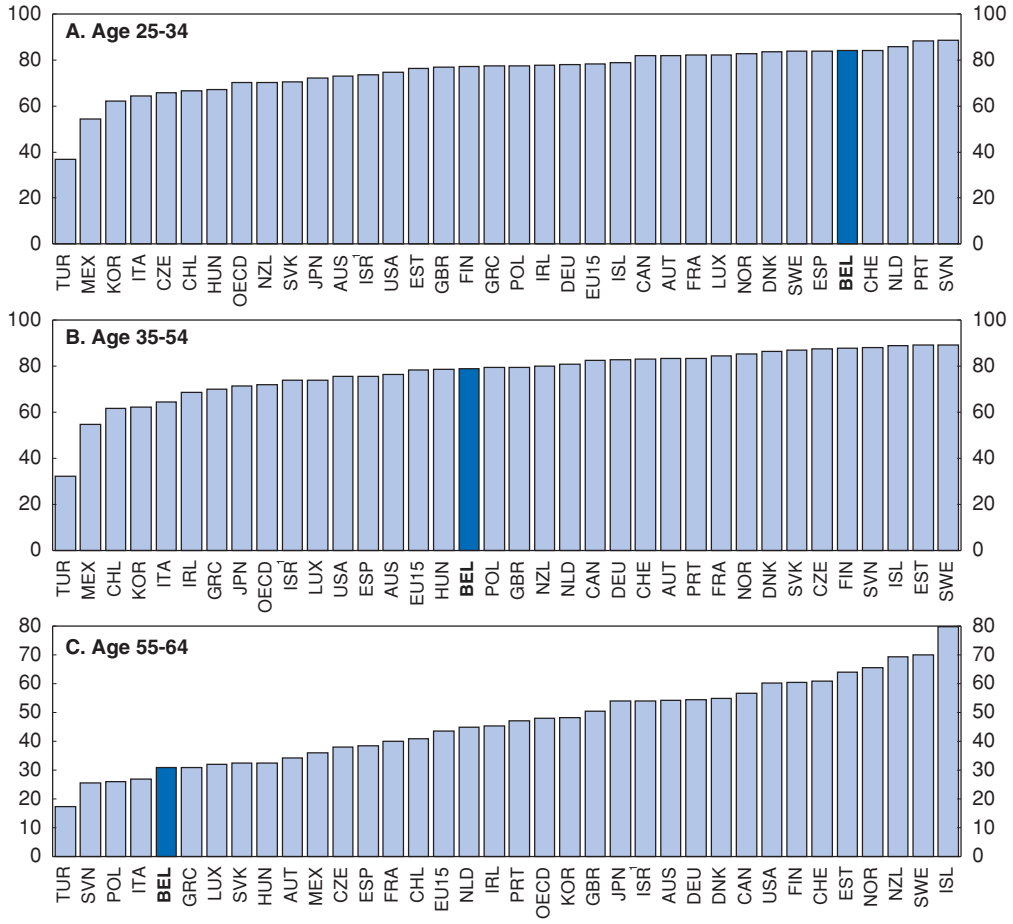
External competitiveness could be better preserved if wage developments reflect productivity developments at the firm level. This is currently possible through the seldom used opt-out clauses, but their implementation is restricted by the requirement of approval from inter-industrial committees. The clauses cannot be used to reduce wages and are bound by the statutory (sectoral) minimum wage (Keune, 2011). The use of opt-out clauses would be facilitated by making them only subject to approval by the involved workers and firms. Their usefulness would be enhanced if they were not bound by sectoral agreements on statutory minimum wages and the automatic wage indexation. Another possibility is the rarely used all-in agreements, which stipulate nominal wage growth thus removing any effect of inflation surprises. These should be promoted along with opt-out clauses. Within the current wage agreement's focus on real wage increases, the all-in agreements would have to use the expected nominal wage increases as a benchmark. In the context of an overall review of all indexation mechanisms, the automatic wage indexation should be reformed. A first step in this direction could be to redefine the health index to exclude all energy components in the consumer price index so as to remove the most common terms-of-trade shocks. Also all effects of higher indirect taxation could be excluded. In parallel, there is a need for improving the price and tariff mechanisms in the energy markets. However, such a first step would not remove inflation effects of euro depreciations. In the medium term, it would be advisable that the social partners consider phasing out the wage indexation system, so as to allow greater real wage flexibility. Over the longer term, the losses in competitiveness can be prevented by having wage developments based on domestic (firm-level) productivity developments.

There are still large underutilised sources of labour

The labour force could be expanded substantially by increasing the low female employment rate. It is low largely because of the low employment rate for low-skilled women, but also a strong cohort effect (Figure 2.14). The cohort effect, together with the continued expansion of service sectors, means that the female employment rate will increase over time. On the other hand, boosting employment of low skilled women requires marked reductions in the internationally high effective marginal tax rates, which creates inactivity and unemployment traps that hit low income spouses particularly hard. While further reforms in this area are needed, such measures should be combined with an expansion of earned income tax credits (EITC) to reduce the effective marginal tax rates for low-income families. Such a measure should be combined with the completion of the full tax separation of spouses as recommended in the last *Survey* (OECD, 2008).

Figure 2.14. **Female labour participation exhibits a strong cohort effect**

Per cent, 2010



1. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

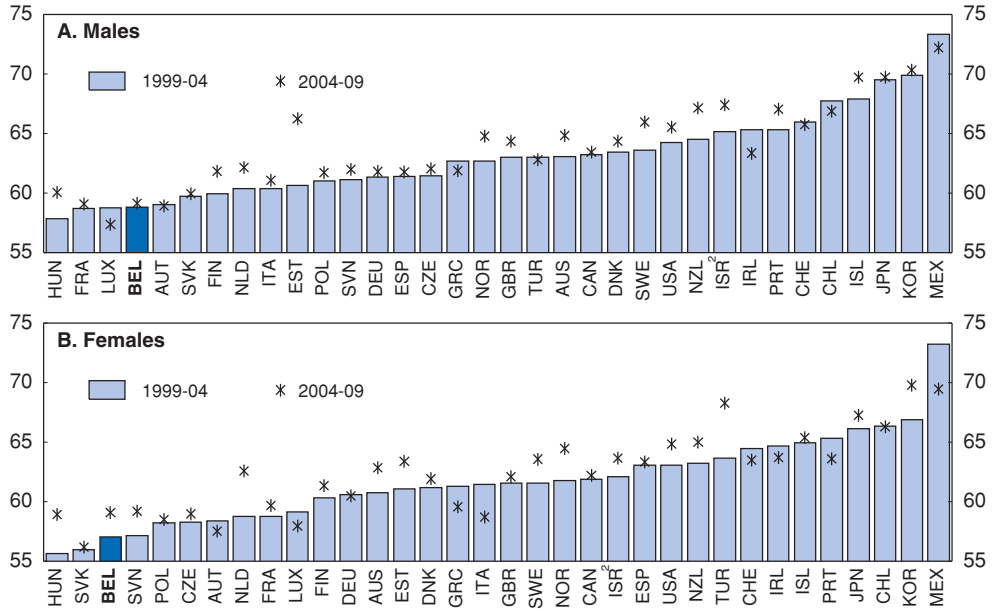
Source: OECD, *Labour Force Statistics Database*.

StatLink http://dx.doi.org/10.1787/888932459546

The effective retirement age is among the lowest in the OECD

Since mid-2000, there has been a minor increase in the effective retirement age for males and a two year increase for females, largely reflecting the gradual increase, completed in 2009, in the legal retirement age for women to 65 to align it with that of men. Despite these positive developments, the age for both males and females remains among the lowest in the OECD (Figure 2.15). The 2005 Intergenerational Solidarity Pact aimed at increasing working lives by reforming early retirement systems (Box 2.5). The Pact tightened access to the conventional early retirement scheme by restricting eligibility before the age of 58 to workers with long working careers and in physically demanding jobs (Jousten *et al.*, 2008).[17] Moreover, the Pact stipulates that in 2012 the career length for men and women should increase from 37 and 33 years, respectively, to 40 years, if the employment rate for +50 years has not increased 1½ time faster than the EU average. If that is the case, the career length is to be increased to 38 years as from 2014. The implementation of these measures is to be discussed in the autumn of 2011.

Figure 2.15. **Effective retirement ages in the OECD**[1]



1. The average effective age of retirement is calculated as a weighted average of (net) withdrawals from the labour market at different ages over a 5-year period for workers initially aged 40 and over. In order to abstract from compositional effects in the age structure of the population, labour force withdrawals are estimated based on changes in labour force participation rates rather than labour force levels. These changes are calculated for each (synthetic) cohort divided into 5-year age groups.
2. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD estimates based on the results of national labour force surveys, the European Union Labour Force Survey and, for earlier years in some countries, national censuses.

StatLink http://dx.doi.org/10.1787/888932459565

The employment rate for older workers (age 55-64) is about 41% higher than in the beginning of the 2000s, partly reflecting that the possibility for older workers to receive unemployment benefit without being available to the labour market was in 2004 restricted to workers older than 57 and stricter access to conventional early retirement in 2008 (Jousten *et al.*, 2008). Since 2007, a financial reward – a pension supplement of 2 EUR per day worked – has been offered to workers who remain in the labour market after the age of 61 or prolong their career beyond 43 years. Nonetheless, the employment rate for older workers in 2009 (age cohort 55-64) was only around 35%, some 11 percentage points lower than the EU average. On the other hand, the measures implemented have helped during the crisis to contain the increase in early retirement to be less than in other recessions. Nevertheless, many (high-skilled) workers are still retiring from the labour market well before reaching the official retirement age of 65, adding to the labour market mismatch problems, and further measures are needed to boost the effective retirement age.[18]

There remain a number of routes to leave the labour market before the legal pension age of 65. Firstly, workers in the age bracket 60-64 can retire through the standard pension

Box 2.5. **Present and past early retirement systems in Belgium**

The 1967 merger of several existing pension systems laid the basis for the current pension system. The Pay-As-You-Go (PAYG) system originally had a normal retirement age of 65 for men and 60 for women. In that system, earlier retirement was possible within 5 years before the normal retirement age by accepting a 5% reduction of benefits per year before the normal retirement age. Full pension benefits were calculated on the basis of a 45 year working career for men and 40 years for women. Since 2009, male and female legal retirement ages have been aligned to 65 and they have the same 45 years working career condition. Some categories of workers, such as veterans, resistance fighters, deported people, coal miners and sailors are allowed to retire up to five years earlier without reductions in benefits. One of the arguments for increasing the scope for early retirement was to create employment possibilities for younger workers, but the lack of an empirical link between retiring cohorts and youth unemployment shows this to be a lump-of-labour fallacy (Jousten *et al.*, 2008).

An early retirement scheme was introduced in 1983, allowing workers to retire up to five years before the normal retirement age if the employer replaced the worker with an unemployed person. This scheme was terminated in 1991, when the present system came into force, effectively reducing the early retirement possibilities for females to the age of 60 rather than 55. Between 1997 and 2009, the female retirement age was gradually aligned with the male one.

In 1973, a parallel system of complementary benefits for early retirement was introduced for fired older workers (+60 years), who would be entitled to an employer paid top-up equal to half of the difference between the net wage and the unemployment benefit. In addition, older workers would be exempt from job search and the unemployment spell would be fully credited in the calculation of the working career – such credits are also made for a range of other non-work periods, including for sickness, maternity leave, partial work, vacation, strikes, lock-outs, among others (Conference Pensions, 2011). The initial age limit of 60 years was since lowered through collective sectoral bargaining agreements to 58 years. Numerous exceptions are in place. For example, the general rule stipulates that the retiree must be replaced, unless the company is in economic difficulties, restructuring or unable to find a suitable replacement. If the company is in economic difficulties, the standard minimum age of 58 can be lowered to 52 or even 50 in special circumstances. Some sectors and professions enjoy lower minimum access ages (55, 56, or 57) such as the steel, glass, textiles, construction sectors and some shift workers, etc depending on more stringent career conditions.

Granting early retirement to workers from larger firms in economic difficulties has been used repeatedly, including Renault Vilvorde (1997), Sabena (2002), Belgacom (2001), Siemens Belgique (2001), Philips Hasselt (2002), Fortis (2002), Ford Genk (2003), VW Forest (2007), BASF Feluy (2009), GSK (2009), and Carrefour (2010). More recently, an exceptional lowering of the legal early retirement age from 52 to 50 years was granted to nearly 650 fired Opel workers (Antwerp) as nearly half of these were in the age bracket 50-52 years.

system after a career of 35 years. In addition, the unemployment benefit system provides for four main paths for the age bracket 55-59 (Cremer *et al.*, 2009):

- Unemployed older than 57 are not subject to search requirements and can thus use the unemployment benefit as their pension income.
- Unemployment benefits may in some instances (typically in case of collective dismissals) be topped up by the former employer with the consent of the government, the so-called pre-pension.

- Firms persuade their workers to take unemployment and provide a compensation to make up for (some of) the difference between their earlier salary and unemployment benefits. This system is often referred to as "Canada Dry" pre-pension.[19]
- Firms allow workers to take a part-time career break ("time credit") and compensate them for the non-worked time. Schemes that are based on social benefits other than unemployment benefits and employer top-ups are often referred to as pseudo pre-pensions.

The two latter paths (with employer-provided compensation) are made more attractive by the fact that the top-up payments are taxed at a preferential rate and not subject to social security charges. The 2005 Intergenerational Solidarity Pact subjected employer-provided compensation outside the provisions of sectoral collective agreements to special social security charges to discourage the use of these alternative early retirement schemes. The benefit for firms of providing top-ups is that this allows for relatively cheap downwards adjustment of labour inputs and avoids a negative gap between productivity and experience-based wages. Indeed, the steep earning-age gradient in Belgian wages may hamper the ability of older workers to remain in employment. Furthermore, all three paths allow the accumulation of pension rights based on the previous salary (as is the case with other job seekers) unlike the situation in most other OECD countries with a pay-as-you-go pension system (OECD, 2009b). Moreover, the top-ups and the continued accumulation of pension rights mean that workers are often financially better off using the unemployment benefit system as a pathway into early retirement than actually taking early retirement, which would mean a significantly lower replacement rate (Whitehouse *et al.*, 2010).

Increasing the effective retirement age is one of the most effective measures to meet the fiscal challenge of population ageing (see Chapter 1) and has been pursued across the OECD countries by closing down paths into early retirement and by giving economic incentives for workers to remain in the labour market. The 2005 Intergenerational Solidarity Pact contains provisions for longer careers before entering early retirement to secure a full pension as the increase in the effective retirement age falls short of expectations. Nevertheless, additional measures are needed. A first step would be to increase the age at which early retirement programmes can be accessed and make entry conditional on individual assessments of work capacity. It should also become more economically beneficial to remain on the labour market. Currently, workers choosing the exit route can maintain almost all of their previous income without losing pension rights. This can be addressed by taxing all employer-provided top-ups in line with other labour income instead of being declining with the age of the worker and exempted for top-ups under sectoral collective agreements. This should be combined with the introduction of a differential in the accumulation in pension rights between unemployed and active workers, for example by crediting the unemployment period in the calculation of the working career, but only with the value of the received benefit rather than the previous salary. In addition, taxing of pensions should be increased to the same level as is applied to similar income from other sources. To encourage those that nevertheless chose this route to seek employment, the standard job search requirements should be extended to all unemployed irrespective of age. Such measures could be combined with enhancing incentives to remain in work by increasing the accumulation of pension rights, for example by raising the pension supplement for workers continuing working after the age of 61. Increasing the legal retirement age and the required career length to obtain a full pension for women contributed significantly to push up their effective retirement age. This

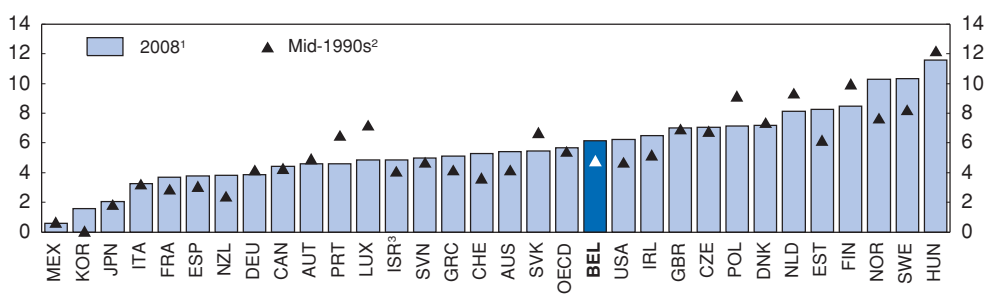
measure could used again by increasing the official retirement age to, for example, 67 years to partly reflect past gains in life expectancy and thereafter link it to further changes in longevity. The effectiveness of such a reform would depend on introducing measures to improve labour demand for older workers, such as ensuring that their wages and productivity are aligned. Moreover, an increase in the legal pension age could be accompanied by special retirement arrangements for workers that via individual assessments are found to have reduced work ability.

A relatively high share of the potential labour force is parked in disability benefit system

In 2008, the number of recipients of disability benefits was above 6% of the working age population (equivalent to nearly 9% of the labour force) and spending stood at about 2% of GDP (Figure 2.16), following a couple of years with doubled digit spending growth (NBB, 2008; Jousten *et al.*, 2010). There is some concern that disability is being used as a route to early retirement as twice as many of an older cohort collect disability benefits than of middle age cohort (Milligan and Wise, 2011; Jousten *et al.*, 2010). Moreover, spending on disability has increased as labour market policies became stricter, suggesting possible substitution. In other European countries disability reforms have been high on the agenda, particularly to restrict access and introducing retesting procedures of claimants (OECD, 2010). The 2011 Budget contains some measures to encourage disabled to voluntary return to work, in terms of making it financially more attractive and to provide support and counselling. Testing or retesting that can distinguish between disabled and healthy, but retirement-prone, workers may prevent the use of disability as a route into early retirement (OECD, 2010e; Cremer *et al.*, 2004). In Belgium, the eligibility criteria in disability include a loss of earnings capacity of 66% over a period of at least 12 months and the recipient must also satisfy a minimum contribution requirement of 120 days (Jousten *et al.*, 2010). The level of benefit is dependent on the household situation and paid free of taxes with replacement rates that are similar or lower than those in the unemployment benefit system. Incentives to return to work are limited as recipients are initially classified as fully

Figure 2.16. **Disability benefit recipients**

As a percentage of the population aged 20-64



1. 2005 for Luxembourg, 2007 for Austria, Canada, France, Israel, Italy, Poland, the Slovak Republic, Spain and the United Kingdom. Data for Hungary include three different non-contributory allowances.
2. 1996 for Belgium and Canada, 1999 for the Netherlands, 2000 for Hungary, Italy and the Slovak Republic, 2001 for Ireland, 2003 for Japan and Mexico, 2004 for Poland.
3. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD (2010), *Sickness, Disability and Work: Breaking the Barriers: A Synthesis of Findings across OECD Countries.*

StatLink http://dx.doi.org/10.1787/888932459584

disabled and thus without work capacity. Subsequently, recipients may return to (part-time) work if their work capacity is reduced by at least 50%, but benefits are reduced in line with rising wage income, entailing a high effective marginal tax rate.

Reform of the disability system could follow initiatives in taken in other countries, notably in the Netherlands. Stricter entry requirements could improve sorting and assess remaining work capacity. For those enrolled in the programme, work capacity should be assessed on a regular basis (rather than the degree of disability). To ensure that it always pays to work for the partially disabled, the work capacity assessments should be used to determine the hypothetical earnings capacity of the benefit recipients. Disabled that return to the labour market should have benefits that (partially) cover the income loss implied by the difference between the received wage and the hypothetical wage.

Box 2.6. **Summary of recommendations to make the labour market more inclusive**

Introduce checks and balances to reduce deadweight costs of the reduced working time schemes

- Access should be restricted to firms that can demonstrate a significant drop in activity and approved by the relevant labour market authority. Restrict re-entry into the schemes to reduce systematic use. Alternatively, employers should finance the initial period of enrolment. Control overall costs by making schemes budget dependent, requiring parliamentary approval for continuation.
- Avoid parking of key workers by requiring employers to (partially) re-pay subsidies if workers are fired after enrolment. Make enrolled workers available for hiring by other firms. In case of prolonged enrolment, considered making enrolled workers subject to standard job search requirements. Enhance job-search incentives by reducing benefits over time, banning benefit top-ups from employers, and limiting days of enrolment per year.

Improve young people's labour market transition

- Facilitate school leavers' transition into the labour market by abolishing minimum hour restrictions on small hours jobs to secure a more flexible supply of such jobs.
- Better align young people's wages with their productivity by reducing sectoral minimum wages to the statutory minimum wage, combined with a more gradual phase-in of the youth minimum wage. Alternatively (sectoral) entry wages should be introduced, applicable to workers (re-)entering employment.
- Strengthen job search incentives in the system of special unemployment benefits for young school leavers (the so-called "waiting allowance") by restricting such benefits to those younger than 26 years.

Enhance the labour market performance of immigrants

- Extend sufficient language teaching to all age groups, particularly early language training of new arrivals. Postpone streaming in the education system as long as possible and improve the possibilities for returning to a higher track. Include a more significant immigration element in the allocation mechanism of additional educational resources to correct for socio-economic backgrounds. More generally, there is a need to improve vocational training to better reflect labour market demands.

Box 2.6. **Summary of recommendations to make the labour market more inclusive** *(cont.)*

Refocus the wage determination system on preserving and improving external competitiveness

- The possibilities for aligning wage developments with local labour market conditions should be enhanced by making opt-out clauses and all-in agreements only subject to approval by employers and employees of the involved firm.
- In the context of an overall review of all indexation mechanisms, the automatic wage indexation system should be reformed. A first step could be to redefine the health index to exclude all energy components from the health index. Also all effects of higher indirect taxation could be excluded.. In parallel, there is a need for improving the price and tariff mechanisms in the energy markets, including stronger competition enforcement. In the medium term, it would be advisable that the social partners consider phasing out the wage indexation system, so as to allow greater real wage flexibility. In the long term, external competitiveness losses could be prevented by basing wage developments on Belgian productivity developments.

Activate other resources of under-utilised workers

- Boost work incentives for low-income spouses by reducing their effective marginal tax rates by completing the tax separation of spouses.
- Increase the effective retirement age by raising the minimum enrolment age in early retirement programmes and replace sectoral exemptions with individual assessments of work capacity. Enhance incentives to remain in the labour market by taxing pensions similarly as income from other sources. Increase the legal retirement age to reflect past gains in life expectancy, and thereafter link it to further gains in longevity.
- Subject older workers on unemployment benefit to standard search obligations. Tax all employer-provided top-ups similarly to other work-related income. In addition, a differential in the accumulation of pension entitlements between unemployed and employed should be introduced.
- Restrict access to the disability system to prevent it being used as a route into early retirement – particularly if other routes are being closed.
- Reform of the disability system should focus on assessing partial disability with a link to benefits that ensures that work pays for the partially disabled.

Notes

1. The response in youth unemployment to economic cycles has a larger amplitude than adult unemployment both in downturn and upturn, so younger workers should benefit most from an economic upswing (Conseil supérieur de l'emploi, 2009; OECD, 2007).
2. In Flanders, the regional PES (VDAB) has a special support system for those aged 50-52.
3. A problem is this respect is that temporary workers are a very heterogenous group (often younger and immigrant workers) and they often rapidly change between employment, unemployment, and inactivity, making tracking difficult and hindering the guidance effort by PES.
4. Designing effective training incentives is difficult. For example, the popular (214 000 requests in 2009) Flemish training cheques with a maximum value of EUR 250 to help workers to gain skills to improve job prospects are mostly used for courses to enhance lifelong learning or personal interests and only 40% for job-related training. In mid-2010, a new requirement for the cheques was that they can only be used for courses that are accredited for paid educational leave. Generally, private firms benefit from providing formal training as the positive net effect on labour

productivity is higher than the increase in labour costs and wages, although only about a third of firms actively train their workers (Mahy and Volral, 2010).

5. The most important reasons for invoking the reduced working time schemes are adverse economic developments, weather, technical failures, force majeure, closure of the company during annual holidays, and strikes.

6. The long procedures are also hampering labour reallocation as the PES cannot start accompanying the affected workers until the procedures are completed.

7. An additional issue concerns targeting on which no Belgian specific research is available. Recent empirical German studies show that small firms, which are normally more exposed to credit crunches and thus need short-term public support, are significantly less likely to participate in reduced work time schemes than medium – to large sized firms. This probably reflects that small firms have a more limited ability to adjust work processes and to manage flexible working arrangements more generally.

8. In addition, the increased information exchange between the regional PES has started showing results with for example 7 000 unemployed from the Brussels Capital region finding employment in Flanders. In all, more than 42 000 people from the Brussels Capital Region and about 105 000 people from the Walloon Region worked in Flanders.

9. The split between the statutory and the sectoral minimum wages reflects that the statutory minimum wage has not increased in real terms since 1993, while sectoral agreements typically adjust upwards all wages.

10. An argument for high minimum wages is to combat poverty. However, the minimum wage is a poor instrument to combat poverty, particularly for younger workers still living with their parents.

11. As with young unemployed receiving unemployment benefits, those on the waiting allowance are subject to the regional guidance and job-matching measures.

12. Students do not seem to value this type of training as they are perceived to have low status (OECD, 2010). This perception may partly be related to one of the largest discrepancy in performance between vocational and academic students in terms of PISA score in mathematics, reading and science.

13. In spring 2011, the rules were relaxed to allow the exemption to be applicable to an additional 4 days, totalling 50 days, and with no restrictions on timing.

14. Increased search activity in connection with exhaustion of benefits has been shown, among others, for Spain (Alba-Ramirez *et al.*, 2006), France (Dormont *et al.*, 2001), Portugal (Portugal and Addison, 2008), and the United States (Jurajda and Tannery, 2003).

15. Nationality acquisition is easy in Belgium (only requiring 7 years of permanent residency and no language or integration tests) benefiting more than 400 000 foreigners in 1990-2002. An implication is that Belgian immigration data represent a narrower group of immigrants than in other countries. Foreigners represent 9% of the population, but at birth almost 13% do not have Belgian nationality (Wets, 2006). Recent immigration relates mostly to family reunification, often implying new arrivals with a longer distance to the labour market.

16. A striking comparison can be made with Austria, which has an employment rate for Turks that is comparable or higher than for natives and much higher than for Turks in Belgium. The main difference between the two countries is that in Austria an extended period of unemployment can cost immigrants the legal base of their stay, while in Belgium the ease of obtaining nationality provides the right to unlimited duration of unemployment benefits, creating large unemployment traps (Wets, 2006).

17. Similar exceptions are in place for some workers in the construction sector and some shift workers. Earlier retirement is possible (at 52 or even 50 years) under special circumstances, if the company is in economic difficulties. Legally, it is possible to activate early retirees, but this is rarely done.

18. There are examples of key workers entering early retirement. When the large metallurgist Arcelor Mittal began to restart steel production after the crisis on a temporary basis in 16 of its 25 European furnaces, none of the Belgian ones were restarted, reportedly because of a lack of replacements for former skilled employees that have entered early retirement.

19. The term originates from an old European commercial stating that: “Canada Dry Ginger Ale looks like beer, has the colour of beer, but is not beer” and where the word “beer” is replaced by “unemployment”.

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ANNEX 2.A1

The seasonal pattern in the reduced working time programme

There is a strong seasonally in the use of the reduced working time programme for blue-collar workers with a particularly strong pick-up in usage during the poor weather season in the autumn and winter. This indicates that the programme is not really targeting special adverse economic situations, but rather has become an integral part of the functioning of the labour market. This is likely to have adverse effects on wage formation and labour allocation, as firms that park their employees in the programme are willing to offer a higher wage to ensure that workers return to their company after the unemployment spell, reducing reallocation of labour. In addition, there is a risk that firms do not adopt new production planning, processes and methods to counter adverse seasonal developments.

The seasonality is tested for by estimating the variable on its lagged value and a dummy for each of the four quarters.

Table 2.A1.1. **Estimation results**[1]

Dependent Variable: EMECSAPT

Method: Least Squares

Sample (adjusted): 1988Q2 2011Q1

Included observations: 92 after adjustments

Variable	Coefficient	Std. error	t-Statistic	Prob.
EMECSAPT (–1)	0.63	0.08	7.69	0.00
Q1	40 689.660	3 622.67	11.23	0.00
Q2	–2980.52	5 670.34	–0.53	0.60
Q3	4150.62	3 583.26	1.16	0.25
Q4	21080.76	2 940.36	7.17	0.00

R-squared	0.764901	Mean dependent var	42 417.33
Adjusted R-squared	0.754092	S.D. dependent var	17 603.25
S.E. of regression	8 729.294	Akaike info criterion	21.04
Sum squared residuals	6.63E + 09	Schwarz criterion	21.18
Log likelihood	–962.8203	Hannan-Quinn criter.	21.10
Durbin-Watson statistic	1.882682		

1. EMECSAPT is the number of persons on part-time employment for economic reasons.

Source: OECD, *Main Economic Indicators Database.*

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Chapter 3

Greener growth in the Belgian federation

The degradation of the environment due to climate change and pollution can harm living standards and damage growth prospects. In Belgium, one of the most densely populated OECD countries, pressure on the environment is particularly strong, and is reinforced by the high energy intensity of the economy and concentrated agriculture. Environmental policy backlogs accumulated over the years highlight the challenges of reducing greenhouse gas emissions and water pollution in a cost-efficient way. To achieve environmental goals at minimum cost across the economy polluters should face the marginal costs of the externalities they impose, which should be achieved by increasing reliance on environmental taxation. Potential adverse effects on income distribution could then be addressed in the tax benefit system. Moreover, where environmental responsibilities are better dealt with at the regional level, regions should have the most efficient tools, such as taxation powers. Where, due to economies of scale and scope or important cross-regional effects, environmental issues are better dealt with at the national level (for instance in renewable energy sources and transport policies), better co-ordination among regions or a greater role of the federal level should be envisaged.

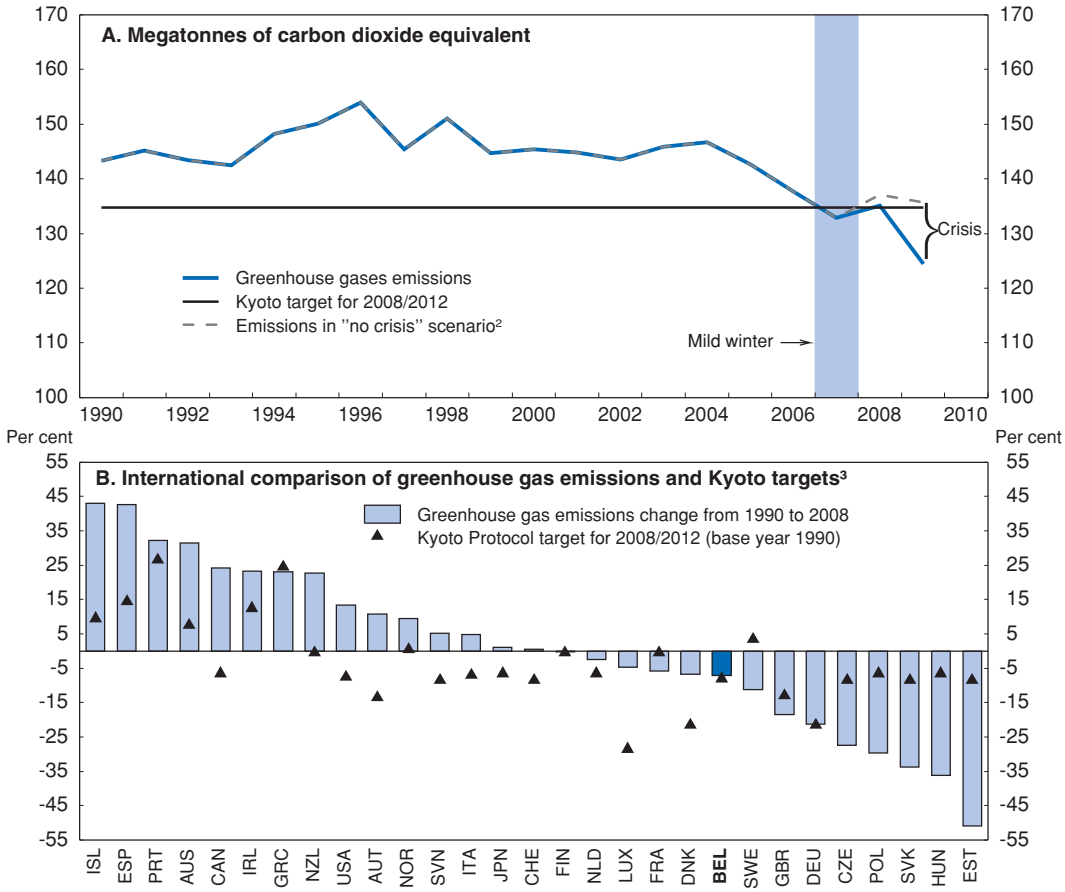
The greenhouse gas emission targets are becoming increasingly challenging

Over the past decade progress has been made in assuring sustainable development and a better and healthier life for Belgians (OECD, 2007a), but environmental performance is still often judged as disappointing.[1] As further objectives are being set, the challenge for the coming years will be to meet them in a cost-efficient way. This chapter goes through the areas of environmental policies where the problems are most pressing, starting from the goal of reducing greenhouse gas (GHG) emissions in this energy intensive economy. The slow development of renewable energy is also addressed in the context of climate change. Air quality, a particular problem in the main cities, is reviewed within this context of GHG emissions due to the interrelations between the two areas. Next, water pollution issues are discussed against the background of years of failing to meet European standards, and the intensive use of water resources. Finally, the division of environmental responsibilities is discussed, with the aim of assuring cost-efficient policies.

Belgium, as many OECD countries, is likely to fulfil its Kyoto commitments for 2008-12 (Figure 3.1). In the Kyoto protocol Belgium committed to a reduction of 2008-12 greenhouse gas (GHG) emissions by 7.5% with respect to 1990, slightly less than the EU15 overall target of –8%. The federal government and the three regions signed an agreement specifying individual targets for each of them (Table 3.1). Together the regional targets yield a national reduction of emissions of 5.8% and the remainder is to be achieved by the federal government through the so-called Kyoto flexible mechanisms, such as the purchase of emission rights and emission-offsetting investments abroad. The regions may also use the flexible mechanisms to achieve their targets.[2] The 2008-09 emissions have turned out significantly lower than initially expected, owing to the drop in activity due to the global crisis – in particular low capacity utilisation in industry and slower transport growth (Figure 3.1 and Table 3.1).

Looking forward, the climate change goals are becoming more ambitious. Within the EU's Climate and Energy Package (so called 20/20/20, Box 3.1) Belgium has committed to targets, for 2020 and beyond, by: participating in the EU's cap-and-trade Emission Trading Scheme (ETS),[3] adopting Belgian targets on reducing its non-ETS emissions by 15% (with respect to 2005) and increasing the share of renewable in energy consumption to 13%. Additionally, Belgium has adopted a 2020 target of a reduction of primary energy consumption by 18% with respect to a 2007 baseline. These targets appear challenging since the baseline scenario (assuming no policy change) is an overall 13% increase in GHG emissions by 2020 relative to 2005 (Bossier *et al.*, 2008). The non-ETS segment is to see a 4% increase. More recent estimates show that the crisis has slowed the increase in emissions (FPB, 2010), but even so the targets for 2020 and beyond are unlikely to be fulfilled without substantial new measures.

Figure 3.1. **Greenhouse gas emissions[1] have been reduced, partly because of the crisis**



1. Total CO_2 equivalent emissions without land use, land-use change and forestry.
2. The "no-crisis" scenario is obtained by assuming GDP growth in 2008 and 2009 is equal to the average growth over 1999-2007 and that the GHG-emission intensity of GDP in 2009 is equal to the value in 2008 adjusted by the average decrease in the intensity over 1999-2006 (proxying for the elimination of the mild winter effect of 2007).
3. The base year is 1986 for Slovenia, the average of the years 1985 to 1987 for Hungary and 1988 for Poland. The United States did not ratify the Kyoto protocol.

Source: Federal Public Service: Health, Food Chain Safety and Environment; *United Nations Framework Convention on Climate Change Database.*

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For the moment, in Belgium there is no clear national strategy on how the 20/20/20 goals are to be achieved (Box 3.2), but it is likely that the governments will sign an internal agreement, as in the case of Kyoto targets. If such an agreement will mean different *ad hoc* targets in each region, implying different carbon prices, it will make abatement at minimum cost difficult, due to limited price equalisation mechanisms for the non-ETS segment. Nationwide reduction strategies would be hence preferable.

Table 3.1. **The burden-sharing of greenhouse gas emission reductions across Belgium**[1]

Units: $MtCO_2eq$	Base year GHG emissions	Commitment (2008-12)	Actual result[2]	
		Average reduction w.r.t. base year	2008 change from base year	2009 change from base year
		(%)		
Wallonia	54.7	–7.5	–12.2	–26.7
Flanders	87.0	–5.2	–4.7	–7.8
Brussels-Capital[3]	4.0	+3.4	+3.9	+1.1
Total	**145.7**	**–5.8**	**–7.3**	**–14.6**
Kyoto commitment	**134.8**	**–7.5**	**–7.5**	**–7.5**
Federal government commitment through Kyoto mechanisms		1.7	–	–

1. Results excluding LULUCF, base year is 1990 for all GHG gasses, 1995 for fluorinated gasses.
2. The emission outcomes are presented for illustrative purposes, and are not directly comparable with the emission targets, due to the fact that the targets include the ETS segment. The emission permits for the ETS segment are allocated in line with country targets can be saved for future years, as well as traded on the ETS.
3. Provisional figures 2008 and 2009.

Source: International Energy Agency (IEA), *Energy Policies of IEA Countries: In-depth review of Belgium*, 2009; Regional and Federal governments.

Box 3.1. **The European climate change targets for 2020 and beyond**

For 2020 and beyond, all EU countries committed under the climate and energy package (so called 20/20/20) to:

- Reducing EU-wide GHG emissions by 20% relative to 1990. This includes a 21% cut (relative to 2005) in industries under the ETS and a 10% cut in non-ETS sectors (transport, residential, services and agriculture). Each country has an individual target – Belgium committed to the new cuts under the ETS and to cutting emissions by 15% in the non-ETS sectors.
- Doubling the overall EU share of renewable energy in final energy consumption to 20% (10% specifically in the transport sector). The Belgian commitment is to increase its share of renewables to 13%.
- Improving energy efficiency by 20%, on the EU level.

The EU climate change and energy package also contains a commitment to further reduce emissions (in total by 30%) if an international agreement with other major emitters is reached.

There are a number of direct consequences of the package for Belgium (as well as for other EU countries). Firstly, the effective separation between the ETS and non-ETS targets combined with a lack of market mechanisms between the two segments means that it is likely that abatement costs are going to differ between the ETS and the non-ETS segments. Hence, pure minimum-cost abatement will not be possible, meaning that there is likely to be too much abatement in one segment, while cheaper abatement possibilities in the other will not be exploited. Second, the individual targets are characterised by strong interactions. For instance, increasing the (Belgian) share of renewable energy in terms of electricity production, while likely to reduce the CO_2-intensity of the Belgian economy, may not lead to any reduction in EU-wide CO_2 emissions, as long as the ETS cap remains fixed. In a similar manner, improvements in, for example, household energy efficiency that reduce (Belgian) electricity use, will only decrease the price of emission permits on the ETS, but not reduce EU-wide emissions (OECD, 2011).

Box 3.2. **Federal climate change policies and the planned phase-out of nuclear energy**

Over half of Belgian electricity production takes place in nuclear power plants which constitute the majority of base load capacity. On current plans (a 2003 law) nuclear energy is to be phased out between 2015 and 2025. In 2009 the government took a decision to postpone the phase-out of the three oldest nuclear reactors by 10 years, but the bill has not yet been voted. The full depreciation of the nuclear reactors creates a windfall profit for nuclear producers, which the government is attempting to tax away. The level of the tax is under discussion.

Federal strategies regarding climate change and energy policies focus on increasing the role of renewable energy sources – from below 4% of total energy consumption currently to 13% by 2020. As smaller scale renewable energy sources are a regional competence, the main plans are for off-shore wind energy (2000 MW of windmill parks in the North Sea), biomass (adapting two major coal plants) and bio fuels (encouraging the share in fuel transport via a quota system). These measures are to reduce emissions by 4%. For the moment, implementation of the plans is lagging – for example windmill developments are delayed because of regulatory issues (capacity constraints on the connection to the grid and bureaucratic procedures). The government also plans to increase interconnection capacity with neighbouring countries (in 2008 net imports of electricity were over 10% of total electricity use). Other measures will yield minor effects.

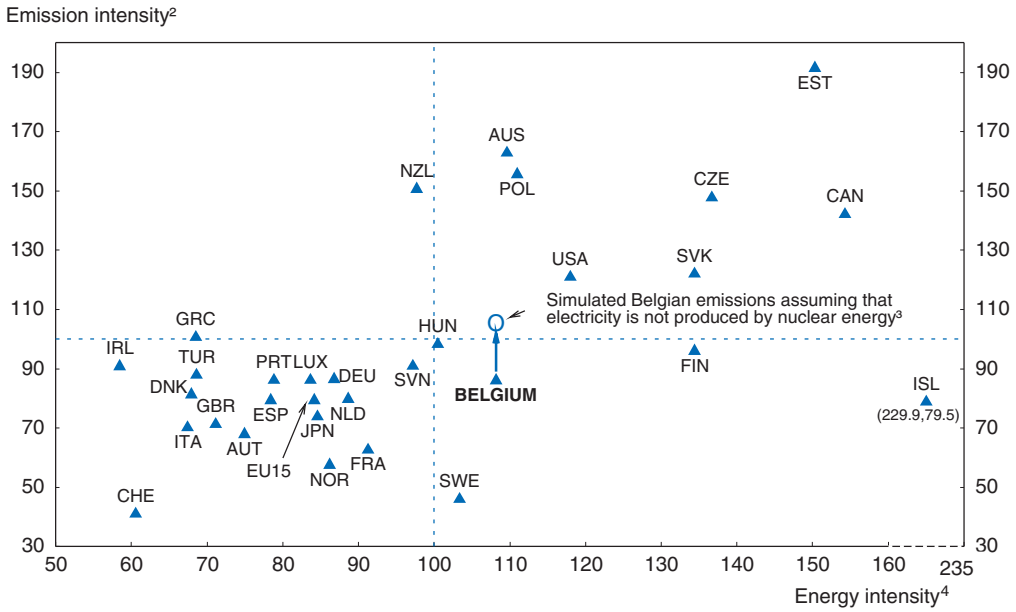
The replacement of nuclear energy is likely to result in increasing overall CO_2 emissions by 12-20%, depending on the assumptions. The phase-out may not be directly relevant for the 20/20/20 targets, since there is no "Belgian" target for the ETS segment – replacing nuclear with fossil fuel plants will increase the ETS price of emission permits, inducing more abatement somewhere across the EU. The resulting increase in electricity prices may have some secondary effects on the composition of energy demand, as the relative price of high-emission fossil fuels will decrease. Still, there are currently no clear plans on how to replace nuclear. According to a sustainable development scenario (GEMIX simulations), a full phase out of nuclear energy would imply an energy mix with about 40% of energy coming from windmill farms by 2050. Such an outcome is likely to be expensive due to the limited physical space for off-shore windmill plants, and problematic in practice due to their poor reliability to provide base or peak load.

The high energy intensity of the economy leads to a large amount of emissions

Despite a slight decrease over the past decade, Belgium's energy intensity of GDP remains above the OECD average (Figure 3.2). The reliance on no-emission nuclear energy reduces overall GHG emission-intensity, but is offset by the widespread use of oil products and one of the lowest shares of renewable energy in the OECD. Overall, emission intensity is above the EU average. Energy-intensive industry generates almost a third of overall GHG emissions, a higher share than in the majority of OECD countries (Figure 3.3). Road transport contributes a fifth of emissions (roughly the EU average) while residential emissions have the second highest share in the OECD.

Figure 3.2. **Energy intensity of the economy is high, while emission intensity is average**

OECD = 100[1], average of levels between 2003 and 2008



1. The OECD and EU15 aggregates are unweighted averages for 2003-08. For emission intensity, the OECD aggregate does not include Chile, Israel, Korea and Mexico.
2. Emission intensity is defined as GHGs excluding land-use, land-use change and forestry, in thousand tons of CO_2 equivalent divided by GDP in 2000 USD using PPPs.
3. Simulated Belgian emissions are shown for illustrative purposes only, given the envisaged phase-out of nuclear energy. They are computed as: (total GHGs emissions + GHGs from energy industries)/GDP in 2000 USD using PPPs. Implicitly this assumes no-emissions nuclear (roughly half of the electricity production)is replaced by current (non-nuclear) electricity production mix.
4. Energy intensity is measured by total primary energy supply (TPES) expressed in tons of CO_2 equivalent divided by GDP in 2000 USD using PPPs.

Source: OECD, *World Energy Balances Database* and *United Framework Convention on Climate Change Database*.

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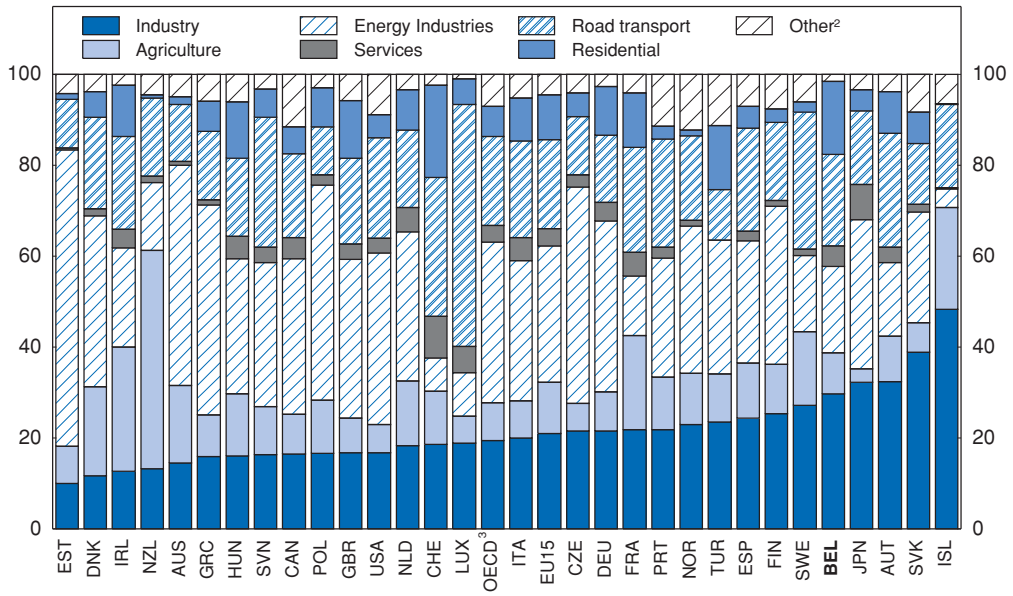
Cheap energy has encouraged an energy-heavy production mix

The energy intensity of Belgian industry is some 50% higher than in the EU15 (IEA, 2010), explaining the high GHG emission intensity (Figure 3.4, Panel B). The industry structure cannot entirely explain the high energy intensity, as the value added share of energy intensive industries (9%) is basically equal to the EU average (McKinsey, 2009). The low employment rate (Chapter 3) suggests the production mix may be a result of years of a combination of relatively high labour costs together with relatively low energy prices, potentially leading to a substitution away from labour to energy (arguments in favour of such substitution can be found in Bassilière *et al.*, 2005). The relative prices reflect the high level of taxes on labour and low energy taxation (Figure 3.5), with excise rates for most fuels being at or close to EU minima, some even at zero rates.[4] Belgium also makes use of most of the exemptions to excise taxation available under EU law (HCF, 2009 and IEW, 2007) – for example, large users with an *accord* or *permis environnemental* face excise tax reductions on fuels up to 100% (HCF, 2009).

Figure 3.3. **An internationally high share of GHG emissions comes from the industrial sector**

As a percentage of total GHG emissions,[1] 2008



1. Total CO_2 equivalent emissions without land use, land-use change and forestry.
2. Includes waste, other transport, solvent and other product use and other not elsewhere specified.
3. The OECD aggregate is an unweighted average and excludes Chile, Korea and Mexico.

Source: United Nations Framework Convention on Climate Change Database.

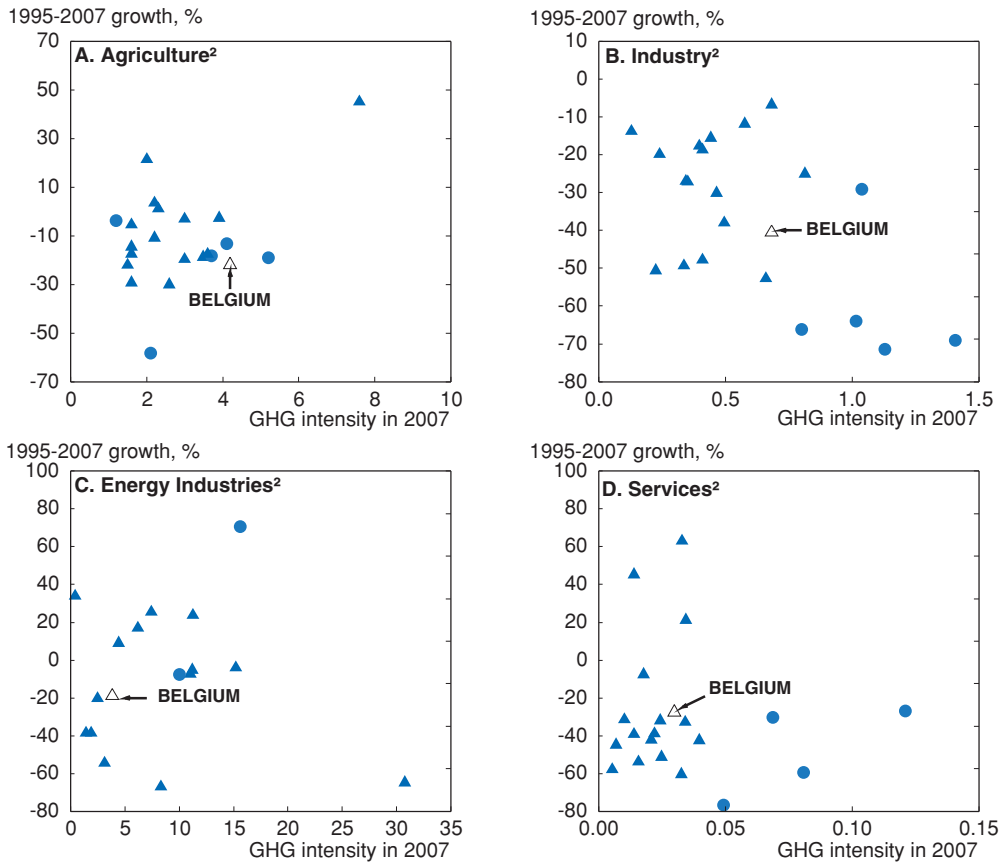
StatLink http://dx.doi.org/10.1787/888932459641

The development of renewable energy sources is expensive

A particular challenge that faces the Belgian economy, in terms of climate change targets, is the development of renewable energy. At the current state of technology, Belgium has limited natural advantages in terms of renewable energy: the marine territory is limited reducing the potential for off-shore windmills, while the largely flat landscape and moderate climate limit the potential for hydropower and solar energy. Furthermore, legal and regulatory problems, such as the fact that grid operators in Flanders regularly refuse to connect renewable energy producers and disputes on who should bear the connection costs, appear to raise entry costs to higher levels than in other countries (AEON, 2010). The result is one of the lowest shares of renewables in electricity production in the OECD, coming mainly from biomass, mostly imported from overseas. Pre-crisis simulations showed that the share of energy from renewable sources was to reach about 7.5% by 2020 – just above half of the Belgian target (Bossier *et al.*, 2008). The effect of the crisis (lower overall energy consumption) and measures taken since 2008 should have a positive effect on the share of renewables, nevertheless, without further measures, it seems highly unlikely Belgium will meet its renewable targets.

To encourage the production of electricity from renewable sources, the federal and regional governments have introduced green certificates (GC's, Table 3.2). In line with the division of environmental (and energy) responsibilities, the federal level is responsible for certificates concerning energy producers connected to the high voltage grid, while the regional certificates concern the low voltage grid.[5] Green certificates are issued to renewable

Figure 3.4. **Emission intensity of industry is high**[1]



1. Greenhouse gas emission intensity is defined as kilogrammes of greenhouse gases (in CO_2 equivalent) per thousand of sector gross value added (in euros and in constant prices of 2000). Change since 1999 for France, since 2000 for Greece and since 1997 in agriculture and services for Switzerland. The last available year is 2006 for Luxembourg, 2007 for Austria, Portugal and Turkey and 2005 for Denmark and The UK.
2. The circles represent Czech Republic (absent in Panel C), Hungary, Poland (absent in Panel C), Slovak Republic and Turkey (absent in Panels C and D).

Source: United Nations Framework Convention on Climate Change Database and Eurostat.

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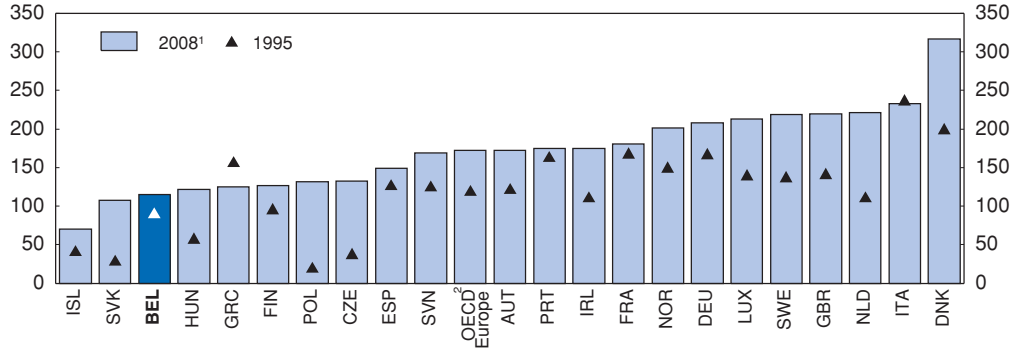
Figure 3.5. **Effective taxes on energy are among the lowest in Europe**

EUR per tonnes of oil equivalent (TOE), base year 2000



1. The last available year is 2007 for France and Greece and 2006 for Iceland.
2. The OECD Europe aggregate is a simple average and does not include Switzerland and Turkey.

Source: European Commission (2010), "Taxation trends in the European Union: Data for the EU Member States, Iceland and Norway".

StatLink http://dx.doi.org/10.1787/888932459679

Table 3.2. **Various types of green certificates aim at encouraging renewable energy**

Prices in EUR per MWh, 2010

	Federal state	Walloon region	Flemish region	BCR
Minimum prices				
Offshore wind (first 216 MW)	107			
Offshore wind (> 216 MW)	90			
Onshore wind	50	65	90	–
Photovoltaic	150	455[1]	350[2]	–
Hydro	50	65	90	–
Biomass	20	6.5-130	90	–
Geothermal	20	65	90	–
Others	20	6.5-26	60	–
GC secondary market price (2009)	**–**	**88**	**107**	**86**
GC tradability	No market, not recognised by regions	Walloon only	Flanders only	BCR and Wallonia
Combined Heat and Power	No	Yes	Separate system	Yes
Compulsory acquisition	Transmission operator	Local grid operator	Distribution operator	Local grid operator

1. The minimum price for a GC in Wallonia is EUR 65. The system is based on CO_2 avoidance (not MWh of energy produced) so a 5 kW PV plant will receive 7 green certificates per MWh, each subject to the minimum price. The number of certificates will decrease with the plant size. For hydro, wind and others the number of GC/MWh is 1. The system is currently under revision.
2. Reduced annually by EUR 20/MWh until 2013 and by EUR 40/MWh onwards. The contracted price is guaranteed for 20 years.

Source: CREG and BRUGEL.

energy producers by the relevant energy regulators. Each electricity grid operator is obliged to purchase all electricity from renewable producers at a market wholesale price. As the costs of renewable energy are generally higher than the wholesale market price, the green producers are compensated with gains from selling the GC's (either on the secondary GC market or to the grid operator directly for a minimum price). The grid operator also places the acquired certificates on the secondary market and can recuperate the difference between the cost of purchase of the GC's on the primary market and the secondary market price through distribution tariffs. On the secondary market, the GC's are purchased by the final electricity suppliers, each of which is obliged to acquire a certain minimum share of its electricity from renewable sources (in 2010 these were 2.8% in BCR, 6% in Flanders and 10% in Wallonia). This is done symbolically by acquiring a sufficient amount of GC's.

The renewable policies are poorly co-ordinated across governments, resulting in five separate GC markets and making renewable policy unnecessarily expensive. The national programme (National Action Plan) for renewable energy is effectively a compilation of federal and regional programmes with little mention of intranational spillovers and co-ordination of the strategies on how to achieve the 2020 target. In practice, regions set their own objectives and use different tools to achieve them, choosing individually the winning technologies and disregarding the marginal abatement costs. In the absence of a price equalisation mechanism, market separation fails to exploit economies of scale and scope – regional GC's do not guarantee that investments in renewables are done where it is economically most viable (across the country), raising the costs of achieving the overall objective. The existence of five (relatively small) separate GC markets also raises administrative costs, and remains an international peculiarity; for instance Norway and Sweden are taking steps to create a common market.[6]

The fact that federal certificates are not accepted on the regional markets effectively excludes large scale production of renewable energy from the regional quotas and thus

favours smaller, and likely less-efficient, producers at the regional level. Indeed, when compared with the 55 EUR per MWh estimated increase in energy prices necessary to achieve the 2020 renewable targets (by making renewable energy economically viable), the regional GC's appear significantly overpriced, while the majority of the federal GC's are too cheap (Bossier *et al*., 2008).[7] The former provide massive returns on low-risk investments in technologies with poor efficiency,[8] and have practically no effect on EU-wide CO_2 emissions (Box 3.1). The excessive prices may have negative environmental consequences, as by raising the final consumers' electricity bill they increase the incentives to switch to more polluting fossil fuels. Therefore, a common GC could be an efficient solution (De Serres *et al*., 2010).

Mandatory minimum prices for certain renewable energy technologies mean that governments are heavily involved in picking winning technologies (particularly photovoltaic) and risk limiting the incentives to improve their efficiency. To avoid a bias to expensive sources, the single GC market should not be bound by minimum prices. Instead, the price of renewable energy, and consequently the development of the cheapest and most appropriate technologies, should be left to the market under the constraint of a credible national path for the mandatory minimum share of renewable energy. The reductions in GC's requirements for suppliers of large clients (currently in place in all regions) are effectively a subsidy to these clients, that is, to large energy consumers, and should be abolished.

Renewable energy is also encouraged through a number of investment subsidies and tax reductions. At the federal level, households can deduct up to 40% of their investment in renewable energy from income tax. Enterprises can deduct 13.5% of their investment in renewable energy from the taxable profits. The federal government also provides implicit subsidies to off-shore wind – through minimum prices on the GC market, connector cables, covering part of balancing costs and government-backed loans from the European Investment Bank (CREG, 2010a). The Flemish government provides investment subsidies to enterprises – 10-20% (to double in the future) of the additional costs of investments in renewables[9] (Guisson and Marchal, 2008). Wallonia provides specific grants for small biomass and combined heat and power plants (IEA, 2010). A common, well-designed GC scheme and low market entry barriers would ensure the viability of investments in the most efficient renewable technologies across the country and improve incentives for R&D in this area.

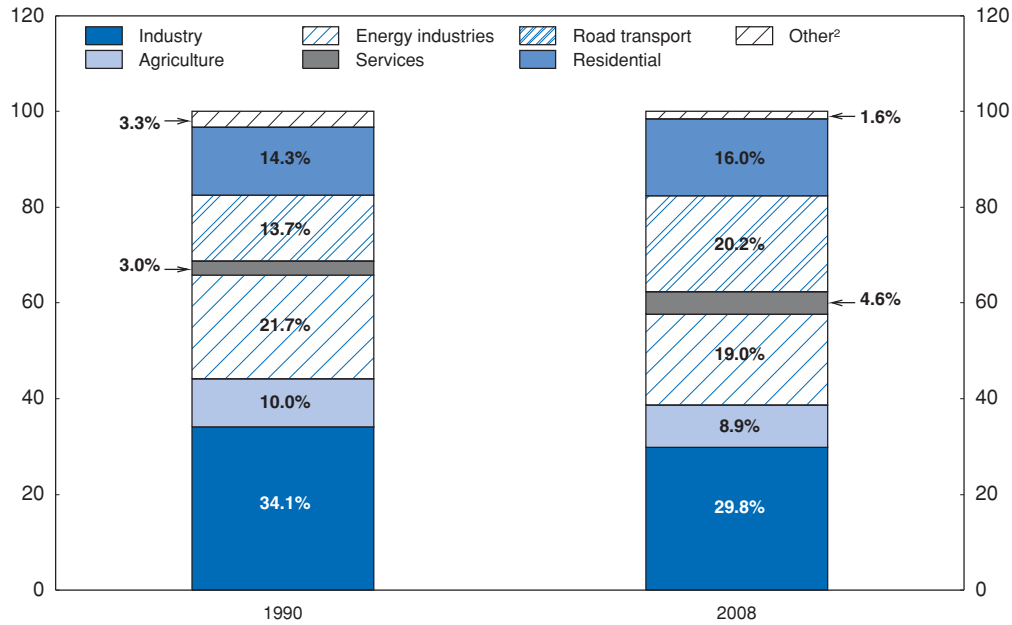
Transport is imposing an increasing burden on the environment

The transport sector, as in most EU countries, has undergone the largest growth in emissions since 1990 (Figure 3.6), reflecting increases in traffic volumes (among the highest in the EU15) only partly offset by better emission performance of vehicles. Particularly high growth of freight transport volumes mirrors increases in world trade as half of the freight traffic is international (Hertveldt *et al*., 2009). Passenger transport reflects intensive commuting, mostly by car with the use per capita among the highest in the OECD. Inland freight transport is mainly on roads, with an internationally high share of inland waterways. The road, motorway and rail networks are well developed and among the most dense in the OECD, but congestion is a frequent feature in bottleneck areas, in particular in the area of Brussels (among the most congested cities in Europe; *Le Soir*, 2010) and Antwerp. On current policies, emissions from transport are expected to continue growing over the next decade (Bossier *et al*., 2008).

A particular feature is the internationally high share of diesel use (Figure 3.7), reflecting the diesel-dominance of Belgian passenger cars (57%, second only to Luxembourg in the OECD, driving some 70% of the vehicle-kilometres) and an important

Figure 3.6. **The share of emissions from transport and residential sectors has been increasing**

As a percentage of total GHG emissions,[1] 2008



1. Total CO_2 equivalent emissions without land use, land-use change and forestry.
2. Includes waste, other transport, solvent and other product use and other not elsewhere specified.

Source: United Nations Framework Convention on Climate Change Database.

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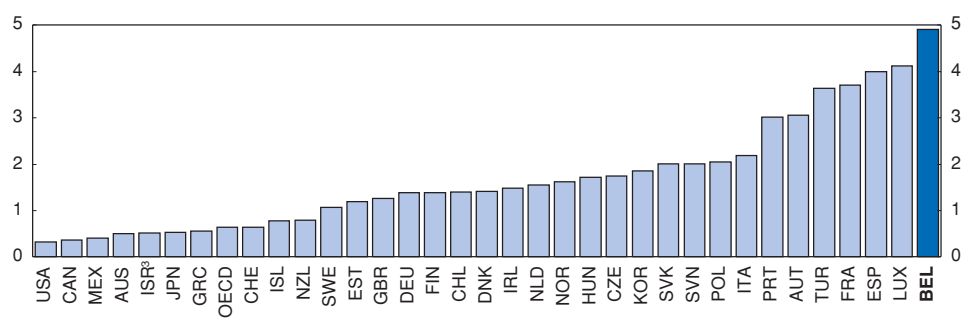
Figure 3.7. **The role of diesel fuel is higher than elsewhere**[1]

Ratio of purchased diesel to gasoline,[2] 2008



1. Diesel refers to biodiesels and gas/diesel oil in kilotonnes and gasoline refers to biogasoline and motor gasoline in kilotonnes.
2. Ratio of diesel consumption to gasoline consumption.
3. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

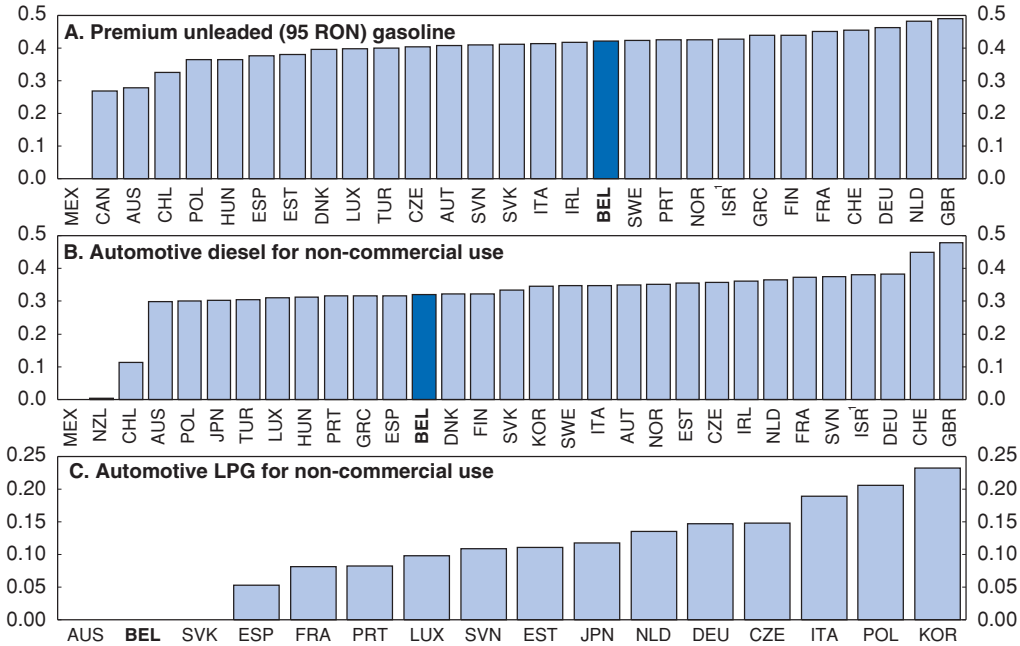
Source: OECD, *OECD World Energy Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932459717

role of international transport. This results, to a large extent, from the relatively low taxation of diesel fuels (Figure 3.8), which is some 40% lower (excise taxation, per litre) than gasoline, despite its 15% higher carbon content and higher related emissions of other pollutants such as NO_x and particulate matter. The two latter are a major problem, in

Figure 3.8. **Fuel taxation favours diesel and LPG**

Percentage of taxes (excluding value added tax) in fuel prices, 2010



1. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD (2011), *Energy Prices and Taxes*, Vol. 2011/1. StatLink http://dx.doi.org/10.1787/888932459736

particular in Brussels (Box 3.3). Furthermore, low diesel prices lead to a "diesel illusion" – one in four Belgians that opt for diesel do not drive enough to make this choice financially viable and would be better off buying a gasoline car (VAB, 2008).

Additional incentives for car use and ownership arise from the tax treatment of company cars and purchase subsidies for "environmentally friendly" vehicles.[10] Company cars provided by employers are strongly encouraged. Private use is treated as a lump sum in-kind benefit, with the taxable value between EUR 630 and EUR 2 400 per year depending on emission class. As a result, employers have been treating company cars as cheap non-wage compensation cost and the number of company cars is estimated at 22% of the passenger car fleet, of which a third are considered as in-kind benefits (Mossakowski, 2011). The cars are often provided with a so-called fuel card, a benefit which effectively facilitates the treatment of fuel expenditures as company costs. Over the past years, the federal government made steps to green the company car fleet by linking fiscal deductibility of the cars to their CO_2 emissions and, in 2010, reducing the deductibility of fuel cards to 75%. These measures should have positive environmental effects, but do not go far enough to repair the damage done by underpriced car use. The tax treatment of such in-kind benefits should be the same as of standard income.

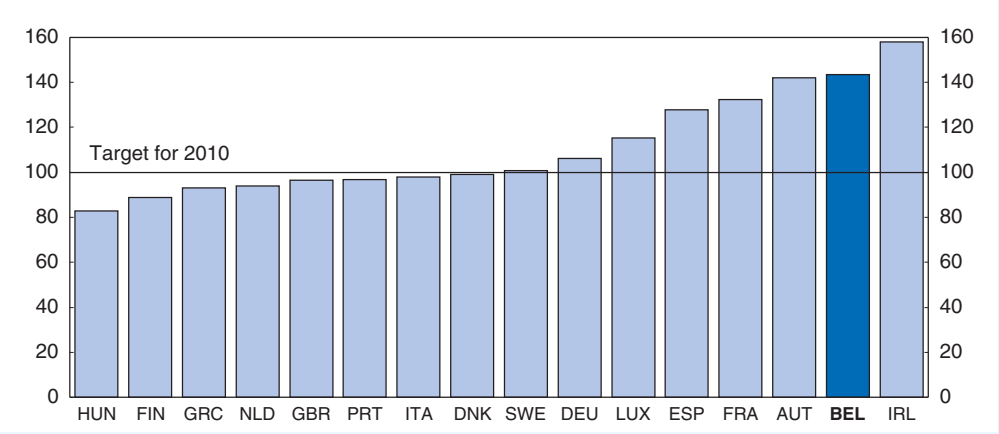
The federal government also encourages the purchase of low-emission vehicles through a tax rebate of 15% or 3% of the price for cars with CO_2 emissions below 105 g/km and 115 g/km respectively.[11] Intended to green the car fleet, the bonus also encourages the purchase of small diesel cars aggravating the problem of NO_x and particulate emissions in city centres, while its abatement cost is rather high – EUR 446 and EUR 817 per tonne

Box 3.3. **Air pollution is linked to transport and household heating**

The two main problems with air quality in Belgium are nitrogen di-oxide (NO_2) emissions and particulate matter (particularly PM_{10}), both largely due to the widespread use of diesel fuels in transport and heating. In the case of particulate matter, the agricultural sector is also an important emission source. As most EU countries, Belgium is likely to have met the 2010 EU targets for all pollutants apart from nitrogen oxides (NO_x) but the margin by which the NO_x target has been missed is among the highest (Figure 3.9). For particulate matter, excess concentration is among the most widespread among the EU15 with almost all the monitored zones exceeding the daily (though not the annual) limits. The problems are particularly acute in Brussels and Antwerp. Overall, the problems with complying with the EU's daily limit values for PM_{10} are likely to persist for many years to come (Fierens *et al.*, 2006, Deutsch *et al.*, 2010).

Figure 3.9. **NO_x emissions exceed targets to a larger extent than in other countries**

2010 EEA projection



Source: European Environment Agency, "NEC Directive status report 2009".

StatLink http://dx.doi.org/10.1787/888932459755

In transport, the abatement of PM_x and NO_x – not directly linked to the quantity of fuel consumed – is largely pursued via EU emission norms for vehicles. Still, even the most recent EURO 5 emission norms for passenger cars permit three times higher NO_x emissions for diesel than for gasoline cars, with particularly high freight emissions. Particulate matter norms are equalised for the two fuels in EURO 5, though in practice the emission of PM_x from gasoline cars is negligible. Moreover, there remains a large stock of old vehicles, which do not comply with the stricter recent norms – it will take another 10 years till EURO 5 vehicles drive more than older cars (TML, 2006). Finally, since their introduction the EURO norms have not been effective in reducing NO_x emissions per litre of fuels, in part as they concern emissions under very specific test-conditions, while in practice values can often be significantly higher and concern new cars while emission performance may deteriorate significantly over vehicle life (DEFRA, 2011).

of CO_2 for the two categories respectively (HCF, 2009). In the Walloon region, the effects are amplified by an environmental bonus/malus system for car purchase. At the same time, car purchase and annual ownership taxes seem to be among the least discriminatory with respect to CO_2 across EU countries (see Braathen, 2011 for a comparison of Walloon numbers with other EU countries). All such subsidies have a high deadweight cost, as they

are also given to people who would opt for a low-emission car anyway, a high fiscal cost (over EUR 200 million in 2010) and should be scrapped. The objective of greening transport should be pursued through marginal externality taxation of fuels, in particular a carbon tax (see below).[12]

The federal government supports commuting through relatively complicated and generous commuting allowances which lower the marginal costs of travelling to work by all modes of transport (Table 3.3). Particular benefits concern public transport and collective transport and no distance limits are imposed on car travel. The system provides disincentives for moving closer to the workplace. Hence, the commuting allowance, particularly for road transport, should be either targeted to low-income workers, who otherwise risk falling out of the labour market, or replaced by a lump sum subsidy for such groups.

Table 3.3. **There is a wide range of allowances to support commuting**[1]

Lump sum benefits	Distance based benefits
PUBLIC TRANSPORT	
The total cost refunded by the employer is treated as non-taxable income. The employer can treat this as a cost (100% deductible from CIT). A 20% subsidy on the ticket price if the employer pays the rest (100% for civil servants).	The employee can receive 0.15 EUR/km as non-taxable income (home-work distance limited to 100 km per day). Employers can deduct 100% from CIT.
COLLECTIVE TRANSPORT (ORGANISED BY EMPLOYER)	
Non-taxable income up to the price of a first class train ticket on the home-work route. Employer can deduct 120% of costs from CIT.	The employee can receive 0.15 EUR/km as non-taxable income (home-work distance limited to 100 km per day). Employers can deduct 120% of costs from CIT.
CAR TRANSPORT	
A fixed non-taxable benefit of EUR 350 per year to cover the costs of commuting. Employer can deduct 100% from CIT.	Employee can receive 0.15 EUR/km as non-taxable income (no limit on the home-work distance). Employer can deduct 100% from CIT.
OTHER MODES (BICYCLE)	
A fixed non-taxable benefit of EUR 350 per year Employer can deduct 100% from CIT.	The employee can receive 0.2 EUR/km as non-taxable income. He can also receive a bicycle or a refund of bicycle costs. Employers can deduct 120% costs from CIT.

1. The employers and employees have to choose between the distance-based and the lump-sum allowances.
Source: High Council of Finance (2009) and Federal Government.

Public transport and bicycles are encouraged through tax benefits and other direct and indirect subsidies (reduced VAT, fuel tax exemption for public transport). The government refunds 20% of the commuting cost if the employer pays the rest. Despite this, only about 9% of Flemish and Walloon residents use public transport for commuting (the share is about 50% for Brussels residents), reflecting that public transport lacks flexibility to substitute the car on a wider basis (SPF Mobility, 2010). One factor may be that public bus transport is organised by a separate body in each of the regions and trains are the competence of a federal body, making co-ordination complicated. Moreover, at the regional level, land regulation issues and financing issues play a role, as for instance visible in the lagging setup of the regional express rail for Brussels.

The limited ability of public transport to adapt to changes in demand, points to the need for flexibility and more competitive pressure. More co-ordination among the regional

and local governments is a must and bus schedules and routes should be made more flexible to accommodate demand. Tendering of services, currently used to a limited extent in Flanders, should be encouraged. Operators should be able to propose new routes, and entry barriers need to be lowered, by guaranteeing access to infrastructure. Ticket prices should remain regulated, due to the limited scope for competition, but subsidies should be transparent and follow a clearly identified benefit (*e.g.* mobility, equity, urban reasons). The government wishing to impose obligations (*e.g.* free tickets for elderly) should pay the full cost directly. Finally, in order to green public transport by improving load factors, more flexibility should be coupled with exposing operators to price signals to encourage emission reductions – they should pay the full (external) costs of their activity (*e.g.* fuel taxes).

External costs can be internalised through fuel taxation and a congestion charge

Fuel taxation is generally well below the external costs generated by road transport, encouraging the demand for transport and relatively high fuel consumption (McKinsey, 2009). As in most countries, fuel taxation is generally higher than most estimates of marginal environmental externalities generated by transport. However, the costs incurred by transport through fuel taxation are disproportionately large for gasoline powered passenger cars, compared to diesel powered cars and in particular freight vehicles. This is largely due to lower relative taxation of diesel, which is associated with external costs of a magnitude higher than gasoline, mainly due to NO_x and PM_x emissions. Moreover, if the non-environmental externalities, such as road wear and tear, accident costs and in particular congestion, are taken into account, fuel taxation appears too low, in particular for freight. Both of these arguments are strengthened in Belgium by the low taxation of diesel (see CE Delft, 2008, Koźluk, 2010, for international examples and Hertveldt *et al.*, 2009, for a Belgian specific study). The arguments against higher fuel taxation are mainly related to competitiveness (of the freight sector and the port of Antwerp) and fiscal revenue leakage. Low taxation of diesel diminishes the incentives provided by the government subsidies for shifting freight from road to rail and inland waterways (IWW). At the same time, empirical analysis generally fails to find evidence of a significant effect of changes in fuel prices relative to neighbouring countries on fiscal revenues (Annex 3.A1), though the importance of international traffic means that a substantial unilateral increase is sure to have some consequences. Nevertheless, the overall effects of higher fuel prices on fuel consumption are likely to be limited in the short to medium term – estimates show that a 1% increase in fuel prices would lead to about a 0.2-0.3% decrease in fuel demand (Annex 3.A1). Long-term effects are likely to be higher as car owners switch to more fuel efficient vehicles (Goodwin *et al.*, 2004).

Fuel taxation should be adjusted in line with the marginal externalities – the users who emit pollutants should pay the marginal costs of their activity, so that they face the adequate incentives to reduce pollution. This means primarily increasing the relative taxation of the more polluting diesel, which should reduce the Belgian diesel bias, thereby lowering NO_x and particulate emissions. Such a reform was recommended in the 2009 *Survey*, and the federal government made a step in this direction by increasing the excise on diesel in 2010. To boost the effectiveness of price-related measures, Belgium-specific price regulations should be scrapped: the price cap on automotive fuels, the automatic adjustment of excise taxes to accommodate large fuel price changes (*inverse cliquet*) and special refund of part of the excise tax for vans, buses, taxis and trucks (*professional diesel*).

A particular externality of road transport is congestion. The estimates of the cost of congestion in Belgium range from 0.05% of GDP (Hoornaert *et al.*, 2009) to 2% of GDP (INFRAS, 2004), largely concentrated in bottlenecks around Brussels and Antwerp. An efficient instrument to tackle this issue, in particular given the concentrated nature of congestion in Belgium, is a congestion charge for each kilometre driven in bottleneck areas and times (Fosgerau and Van Dender, 2010; Eliasson, 2010) or a simpler version such as city access charges (urban tolls) introduced in several cities in the OECD (*e.g.* London, Oslo, Stockholm). Such charges are well targeted to deal with local problems at a limited overall cost. A congestion charge is likely to be a viable solution to the traffic problems of Brussels, reducing queues, travel time and improving air quality, but its introduction encounters a major obstacle due to the regional division of powers in transport policies, as the outer ring road passes through Wallonia and Flanders.

Road pricing can be a viable solution

A more comprehensive, if ambitious, solution would be a nation-wide GPS-based road charge, such as the system recently proposed in the Netherlands (Koźluk, 2010).[13] Such a scheme should include a per-kilometre charge linked to the externalities generated by different categories of vehicles and a congestion surcharge in bottleneck areas. The system could bring about substantial reductions in GHG emissions from transport and air pollutants while limiting the negative impact on economic activity (for instance, contrary to fuel taxation road pricing does not discriminate between domestic transport services and transit transport, and does not encourage fuelling up abroad). If the externalities linked to fuel consumption (such as CO_2) would be embodied in fuel taxes, the per-kilometre prices could take care of the other externalities, in particular those linked to the driven distance (e.g. road wear and tear), discriminating by category of vehicle. The price-discrimination across categories would also improve the NO_x and particulate emission performance (Box 3.3). It could first be rolled out for freight (as in Germany and Slovakia) and utility vehicles, as this is likely to be more politically feasible. For the same reason, road pricing in Belgium might first apply to company cars, and as the scheme gains more public acceptance, it can subsequently be extended to all traffic.

In 2011, the three regions agreed on introducing a common GPS-based per-kilometre road charge for freight, though at the moment of writing details were not available. Such a system can only be efficient if introduced uniformly across the country, and even more so, if introduced across neighbouring countries. Moreover, when introduced for passenger transport, road pricing or congestion charges are likely to increase the demand for public transport, in particular in peak hours, raising the importance of making services more responsive to demand.

Household energy efficiency is poor due to weak incentives

The housing stock is poorly insulated (Table 3.4), contributing to household energy use (per square metre) 70% above the EU average (twice that in the neighbouring Netherlands) and residential emissions per capita twice the OECD average (Table 3.5 and McKinsey, 2009). A third of the housing stock pre-dates 1945 (particularly in Brussels and Wallonia) and heating systems tend to be old (HCF, 2009). Non-compliance with building norms means that the problems are not limited to old buildings (OECD, 2007a). Given the relatively high prices of electricity (Koźluk, 2009), the main source of household heating is natural gas. Heating oil, roughly a third more emission-intensive than gas (CO_2 per GJ), plays an important role (half of the energy use in Wallonia, a third in Flanders and Brussels).

Table 3.4. **House insulation is poor across regions**

As a percentage of total

	Double-glazed windows	Roof insulation	Wall insulation	Piping insulation	Ground insulation	Heat reflectors for heaters
			Flanders (2005), of a total of 2.5 million housing units			
Complete	66.4	65	40.5	49.5	22.8	8.7
Incomplete	17.2	7.9	10.6	17.3	8.2	7.1
Non-existent	**16.4**	**30.1**	**48.9**	**33.1**	**69.0**	84.1
			Wallonia (2007), from a total of 1.3 million housing units			
Non-existent	**19.1**	**37**	**64.1**	**n.a.**	**n.a.**	**n.a.**
			Brussels-Capital (2005), from a total of 400 thousand housing units			
Non-existent	**34.1**	**18**	**29.4**	**19.2**	**n.a.**	**n.a.**
Unknown state	**6.4**	**50.9**	**55.2**	**56.7**	**n.a.**	**n.a.**

Source: Heylen *et al.* (2007) and Carlier *et al.* (2007) and De Coninck and Verbeeck (2005).

Table 3.5. **Residential emission intensity**

Emissions per capita are expressed in kg of CO_2 equivalent

	Residential emissions per capita (2007)	Residential emissions per square meter of useful floor area (2002)
Belgium	1 786	62
Germany	1 055	36
France	956	24
Netherlands	997	29
Spain	429	14
Italy	861	20
United Kingdom	1 261	38
OECD[1]	900	n.a.
OECD EU	911	n.a.
OECD North America[2]	1 163	n.a.
OECD Pacific[3]	474	n.a.

1. Excluding Mexico and Korea.
2. Excluding Mexico.
3. Excluding Korea.

Source: United Nations Framework Convention on Climate Change Database and Eurostat.

Household energy policies – too much of a good thing

Energy prices are not providing adequate incentives to increase energy efficiency of housing, in part due to the widespread use of social energy policies (Box 3.4) and, to a smaller extent, employer-provided in-kind benefits. As lower energy tariffs discourage energy saving, they should be scrapped, while social objectives should be pursued through social policies, such as a lump-sum income subsidy targeted at low-income households, coupled with measures to increase the accessibility of energy-efficiency investments for such groups (see below). Another group not directly exposed to energy prices are those subject to the in-kind benefit, whereby the employer pays the electricity and heating bills. Such benefits are taxed as a lump-sum, regardless of the actual amount,[14] making them a cheap non-wage benefit. These benefits have negative environmental effects as concerned households face zero marginal costs of energy and are more likely to benefit higher income groups. Such benefits should be taxed as any other wage income.

Box 3.4. **Social energy policies and the incentives for saving energy**

Heating affordability for low-income households is guaranteed through the Social Heating Fund – a lump sum subsidy of up to EUR 300 per year (heating oil and natural gas bill). In addition, there is the so-called social energy (electricity and gas) tariff, equal to the lowest commercial (*i.e.* industry) tariff in the area and available to almost 7% (electricity) and over 5% (gas) of households. Since 2009, the attribution of social tariffs became automatic. Households eligible for social tariffs are also exempt from the federal surcharge on energy and face a price that can be well below half of the market tariff, hence providing much lower marginal incentives to save energy.

The reduced VAT rate (12%) on coal for households can also be regarded as a social policy, given that low-income households are the most likely to be heated with coal. Despite a large decrease, coal still heats some 2% of households in Flanders, and the lower VAT effectively decreases the incentives to change to alternative fuels.

In Flanders, all households are eligible for a free electricity quota for each household member. This may further decrease the saving incentive for households eligible for social tariffs (by reducing the total energy bill), but the effect on other households is unclear. The free quota has to be incorporated into retailers' pricing strategies and hence forces a higher tariff on the remaining consumption – potentially increasing the incentive to save.

To counter the weak energy saving incentives and promote energy efficiency, the governments have stepped up measures to directly encourage investment in improvement of housing. The federal government offers numerous tax reductions (*e.g.* for the replacement or improvement of boilers, windows, insulation of roofs, walls and ceilings, energy-saving devices, installation of heat pumps, solar heaters and solar panels) of up to EUR 2 650 per household per year (40% of expenses). The regions top these up by a multitude of subsidies: 22 in Wallonia (down from 48 in 2009), 20 in Brussels and 18 in Flanders, some of which are decided upon an annual basis.

The focus on energy efficiency improvements is commendable, in particular given the 20/20/20 objectives, but the actual outcomes are rather disappointing (HCF, 2009). One reason is that government measures tend to pick "winning" technologies, disregarding the relative cost efficiency and despite the explicit advice from government-financed energy audits of households. The lowest subsidies are provided for measures most efficient in energy saving: roof, wall and ground insulation, window replacement (Renard, 2008 and De Coninck and Verbeeck, 2006). A simple calculation based on 2008 data shows that due to federal and regional fiscal incentives, a Walloon homeowner would choose to install photovoltaic panels (PV) over wall insulation, where the latter would be six times more cost-efficient in reducing CO_2 (Spies and Buxant, 2008). The cost of CO_2 avoidance for the taxpayer would be EUR 23 per tonne in the case of wall insulation, but EUR 1 600 for PV, with similar outcomes in the other regions. Notably, the situation in Wallonia itself has improved somewhat, due to the reforms of Walloon measures, including scrapping of some of the regional subsidies to PV. The strong public support for PV resulted in increasing take up in 2010, but is questionable given the climate conditions and no cost/benefit assessment of the policies (IEA, 2010). Similarly, fiscal incentives support both the replacement of old boilers as well as their maintenance. Most old boilers are subject to quasi-mandatory replacement (because of government or insurance norms), implying an effective subsidy to comply.[15] Finally, many existing subsidies concern also new housing,

where measures could be implemented more effectively through stricter building standards.

The incentives for insulation are more complicated for rented housing, which constitutes roughly a quarter of Belgian housing. Tenants are likely to be less willing to invest in energy improvements of their housing, not being able to reclaim the full benefits from the investment. Similarly, owners of rented property have limited possibility to recuperate the cost of the investment because of rent regulation. In principle, rent regulation foresees a phased-in increase of the rent due to an increase in property value (for instance due to an investment in energy efficiency). Still, the quality and energy efficiency of rented property remains rather poor, and a reviewing rent regulation in this respect, to introduce stronger incentives, should be considered.[16]

Price signals provide the most straightforward incentives, while awareness could be improved

The importance of nuclear energy in providing base load electricity capacity means that base load is relatively CO_2-free compared with gas- and coal-powered peak load. This distinction may not be straightforward in a unified EU energy market, but due to capacity constraints on the Belgian international connection grid, it is possible to assume that peak load is largely supplied by local producers. Hence, the governments also aim at smoothing electricity consumption, particularly through the 24-hour day. This can be done by encouraging meters with day/night tariff readings or the more costly so-called smart meters with real time readings. The Flemish government is planning smart metering by 2018, while tests are underway in Wallonia. As emphasised, such measures will not affect CO_2 emissions in the EU, as long as the ETS cap remains unchanged (Box 3.1).

Households' energy efficiency awareness is poor. The data for Brussels reveals that many households are unaware of the state of insulation of their houses and thus is unlikely to take up subsidies (of which many households have not heard) or in general to improve the energy efficiency of housing (Table 3.4).[17] The rental and secondary markets are also likely to suffer from the asymmetry of information, if the owners do not reveal the energy efficiency of houses put on the market. The governments have recently taken steps to reduce asymmetry by increasing energy awareness by making energy certificates (PEB) an obligatory document for the placement of houses on the market. Other measures include labelling of products (*e.g.* domestic appliances) but arguably, households' incentives would increase with the energy price.

Overall, the existing subsidies for energy saving should be scrapped and the incentives should be provided through energy prices. Government policies should focus on fixing market failures in the areas where efficiency can be improved in economically viable ways:

- Internalising the costs of externalities associated with energy use into the prices (through an externality tax, such as a carbon tax on heating fuels).
- Reducing uncertainty for investments which are likely to break-even in years, by providing credible paths for externality taxation.
- Supporting liquidity constrained low-income households to make such investments, (through targeted investment subsidies or cheap loans) to exploit relatively cheap abatement possibilities, as low-income households are likely to live in poorly insulated housing. In this line, the federal government has recently set aside funds to promote

third-party financing and cheap loans for energy efficiency improvements of low-income households (FRCE/FRGE), while the regions are providing cheap loans.

- Improving energy-efficiency awareness.
- Enforcing minimum building standards for new housing.

Notably, a number of the measures proposed above will also encourage more cost-efficient abatement in the remainder of the non-ETS segment: small industry, services and agriculture.

Purchasing emission rights abroad may slow adjustment to a less carbon-intensive economy

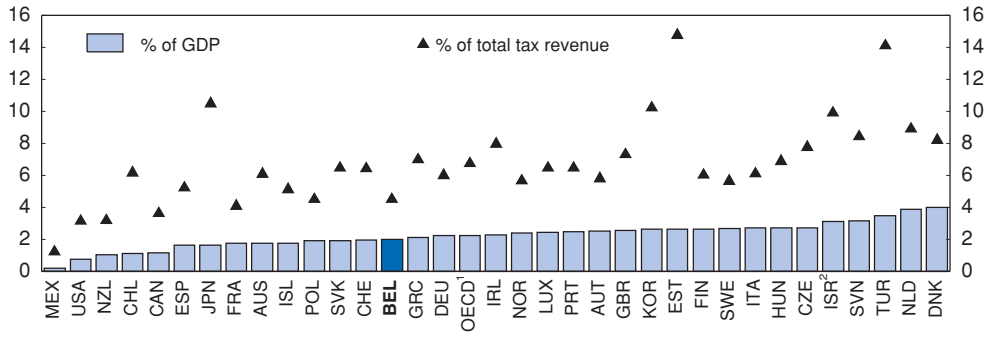
The national burden-sharing agreement foresees that the federal government offsets emissions purchasing carbon credits through Kyoto flexible mechanisms (Table 3.1). Almost half of the overall amount of carbon credits for 2008-12 has already been delivered by mid-2011 (of which a third through emission rights purchases and two-thirds through projects reducing CO_2 emissions in developing countries). The carbon prices paid are confidential. As mentioned, regions can also use flexible mechanisms. Such investments are a viable Kyoto tool that encourages emission reductions in developing countries, where they are likely to be cheaper. However, there is a risk that the strategy may be short-sighted. Such purchases are financed through the federal surcharge on energy which is subject to a reduction for large users, effectively shielding large emitters from external costs at the expense of small users. The result is reduced incentives for restructuring towards a less polluting technology mix and "green" R&D, which may delay the necessary adjustment to a less carbon intensive economy.

Polluters must face the marginal cost of damages to ensure cost-efficient abatement

Environmental taxation is used far less than in other OECD countries (Figure 3.10). Fossil fuels taxes are among the lowest in Europe (Table 3.6) resulting in a very low implicit

Figure 3.10. **Environmentally-related tax revenue**

2009



1. The OECD aggregate is a simple average.
2. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD/European Environment Agency Database on instruments used for environmental policy and natural resources management, www.oecd.org/env/policies/database.

StatLink http://dx.doi.org/10.1787/888932459774

CO_2 prices (Table 3.7) and a higher than optimal use of fuels, likely skewing the production mix from labour to energy and dampening incentives for energy-saving and environmentally friendly R&D. Only taxation in the category pollution/resources (for instance land-fill taxes and packaging waste, Box 3.5) is above that in most EU countries.

Table 3.6. **Revenues from environmental taxes are low**

	Environmental taxes (total, 2008)									
			Energy taxes		*Of which* transport fuel taxes		Transport taxes (excl. fuels)		Pollution/Resources	
	% GDP	% tax revenue	% GDP	% tax revenue	% GDP	% tax revenue	% GDP	% tax revenue	% GDP	% tax revenue
Belgium	**2.0**	**4.4**	**1.2**	**2.8**	**1.1**	**2.5**	**0.6**	**1.3**	**0.1**	**0.3**
Rank in OECD-EU, highest to lowest	19/20	20/20	19/20	20/20	17/20	18/20	10/20	11/20	5/20	5/20
Germany	2.2	5.7	1.8	4.7	1.4	3.6	0.4	0.9	0.0	0.1
Netherlands	3.9	9.9	1.9	4.9	1.2	3.2	1.3	3.3	0.6	1.7
France	2.1	4.9	1.4	3.3	1.2	2.8	0.6	1.3	0.1	0.2
United Kingdom	2.4	6.5	1.8	4.8	1.7	4.5	0.5	1.4	0.1	0.2
Denmark, Sweden, Finland (avg.)	3.7	8.0	2.0	4.4	1.2	2.6	1.1	2.3	0.6	1.3
OECD-EU	**2.6**	**6.8**	**1.8**	**4.8**	**1.2**	**2.7**	**0.6**	**1.6**	**0.2**	**0.4**
Norway, Iceland (average)	2.2	5.6	1.1	2.8	n.a.	n.a.	0.9	2.1	0.2	0.6

Source: European Commission (2010), "Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway".

Table 3.7. **The implicit price of CO_2 for different fuels and uses varies widely**[1]

Based on excise tax, 2008

Fuel	Use	Implicit price of tonne of CO_2 (EUR)
Unleaded gasoline		262.7
Diesel	Used as motor fuel	116.6
	Other use (*e.g.* industrial and heating)	6.8-7.7
Kerosene oil	Used as motor fuel	232
	Other use *e.g.* industrial, heating)	7.2-8.4
Heavy oil	Commercial and private use	4.9
LPG, propane and butane	Used as motor fuel	0
	Other use (industrial and private)	5.9-14.1
Natural gas	Used as motor fuel	0
	Industrial and commercial use	0
	Combustion (commercial and private use)	1.8-4.9 (0 for large consumers)
Coal and coke	Commercial use	5.2
	Private use	0
Electricity	Commercial use	8.3
	Private use	8.3
EU ETS price, 2008 average		15

1. The implicit price of CO_2 is calculated as the total excise duty on a given fuel divided by its CO_2 intensity.
Source: High Council of Finance (2009).

A country-wide carbon tax would reduce emissions and improve energy efficiency

Increasing the overall taxation of energy should bring about a cost-efficient reduction in emissions. Well-designed energy taxation would entail pricing the associated emissions (or generally, pollution), thereby giving polluters the appropriate and straightforward incentives

Box 3.5. **Eco-taxes – limited environmental effect so far**

The eco-tax law (1993) introduced product taxes to discourage consumption of certain (environmentally harmful) goods by encouraging a switch to less harmful substitutes; hence in principle the taxes were to yield minimal revenues. The law included a first list of products subject to eco-taxation while further decisions were left to a committee of experts established for this purpose. The proposed products were drink containers, some types of industrial packaging, some disposable products (disposable razors till 1997 and cameras), batteries, pesticides (abolished in 2001) and paper. Most products would be exempt if a collection and recycling scheme was organised.

The main problems with these eco-taxes concern industry opposition to placing individual products on the list, the lack of transparency and clarity of the motivation and the exclusion of major users of pesticides (agriculture) from taxation. As a result, the goods subject to eco-taxes were mainly marginal yielding doubtful environmental gains. Few products added to the list in due course: disposable plastic crockery, plastic bags, and containers of ink, glue and solvent for professional use. The revenue from the eco-taxes is indeed negligible (EUR 0.2 million in 2010) aside the tax on drink containers (EUR 200 million).

to reduce harmful activity in a cost-effective way (Box 3.6). This should be achieved by realigning excise taxes and introducing a carbon tax on fuels. Current excise taxes on fuels have no relation to the environmental externalities – the implicit carbon prices differ vastly among fuels and among different uses of the same fuel (Table 3.7). Greater neutrality should be introduced if the associated externalities do not differ too widely (there may be a special case for transport fuels, see above). To ensure efficient abatement at minimum cost marginal externalities should be built into prices. In particular, GHG externalities should be addressed with a carbon price. As the ETS segment of the economy is *de facto* subject to a carbon price, a carbon tax should be introduced for the non-ETS segment of the economy (primarily transport and housing, but also small industry, services and agriculture), particularly as this is where emissions have been increasing over the past two decades.[18] Given the high uncertainty about the optimal carbon price, the level of the carbon tax should be chosen with the aim of achieving the Belgian GHG 20/20/20 objective.[19] In this light, the government should establish a clear, credible timetable for the carbon tax (with some adjustment possibilities) in order to provide sufficient incentives to invest in greener technologies and R&D, as such investment is likely to break-even only over a long time frame. The new carbon tax may need to be adjusted to respect to EU guidelines, given recent EU Commission's proposals regarding changes in energy taxations (EC, 2011).

Externality taxation usually meets opposition on competitiveness grounds and, in the case of GHG emissions, because of the fear of carbon leakage. However, there is no obvious relation between environmental tax revenues and competitiveness (HCF, 2009) in particular within a co-ordinated EU approach. The ETS segment will face a carbon price by default, while the rest of the economy (mainly transport and residential) is less directly exposed to international competition. As all EU countries introduce measures to fulfil the 20/20/20 objectives, they impose a carbon price, explicit or implicit. The wider the coverage of a uniform carbon price, the more likely that emissions are reduced at the lowest cost. Carbon taxation will burden particularly heavy emission sources, but indeed this is the point of reorienting the economy to a greener path. A balance, though, must be found between a gradual introduction, which gives polluters time for less abrupt adjustment, and

Box 3.6. **Cost-efficient "green" policies – polluters should face the marginal cost of externalities**

"Green-growth" policies should aim at overcoming the market failures arising from: the environment being a public good; the costs of monitoring and enforcement; imperfect or asymmetric information; and capital market imperfections (De Serres *et al.*, 2010; Duval, 2008). The main principles for choosing instruments to reach climate change and environmental goals entail:

- Equalising the marginal abatement cost across emission sources to ensure lowest-cost abatement.
- Fostering an efficient level of innovation, in order to lower future abatement costs.
- Coping effectively with future risks and uncertainties.

Putting a price on the pollution source or over-exploitation of a scarce resource should improve the competitive position of clean(er) technologies and goods and incentives to invest into green R&D as the costs of pollution will be integrated in the final prices. Pricing externalities can be done, for example, through a cap-and-trade scheme or a polluter-pays (marginal) externality tax. In the presence of high monitoring and information costs, in particular when emission sources are small and numerous (such as in transport or residential heating), the taxation of proxies (*i.e.* fuels) can be a viable solution, conditional on a sufficiently robust link with the externality.

an excessively long phase-in which would punish cleaner technologies and risk the failure of meeting international obligations.

At the moment, practically all Belgian ETS emission permits are grandfathered (granted for free based on historical emissions) providing windfall profits to heavy polluters. This should not prevent an efficient allocation of emission rights, as rights are tradable. However, it does imply transfers from energy consumers to producers. Moreover, empirical evidence show producers passing on the opportunity costs of holding CO_2 permits (obtained for free) to the wholesale price in most EU countries (Sijm *et al.*, 2008) and in particular in Belgium (CREG, 2008) where estimated windfall gains for electricity producers are in the area of ½ per cent of GDP for 2005-07. Increasing the scope of auctioning would reduce windfall gains, yield revenue and improve the governments' experience in the auctioning system, but for the next few years the effects will remain minute under EU limits on auctioning. In this case, the federal government should consider fully taxing away the windfall profit gained from grandfathering of permits.[20]

A carbon tax would also encourage energy efficiency – currently promoted through tax reductions for industry, voluntary agreements and requirements on utility suppliers. The federal government grants higher corporate income tax deductions for energy-efficiency and green investments, while the regions revert to voluntary agreements. Flanders and Wallonia have signed agreements with enterprises covering over 90% of emissions, rewarding participants with tax benefits (such as exemptions from the federal excise tax on fossil fuels), exemptions from selected regulatory requirements and financial aid. Electricity suppliers have a public service obligation of saving energy (IEA, 2010) under which they are to achieve annual reductions in final consumers' energy use under the threat of a fine (Flanders and Brussels) or in return for a premium (Wallonia). None of the measures seem a first best solution in a national context: tax breaks (CIT and excise) come

at a high fiscal cost, while voluntary agreements are generally unlikely to be very effective in reducing emissions (De Serres *et al.*, 2010) in particular if lower energy prices are granted in return. Moreover, such measures may have undesirable effects on emissions if electricity (and gas) is substituted with *e.g.* heating oil. Appropriate energy saving incentives should come from a national carbon tax.

Revenues from environmental taxation could be used to lower taxes on labour

The revenues from environmental taxation can be used to reduce more growth-distorting taxation, such as on labour, aiding the transition from an energy-intensive economy and potentially preserving the competitiveness of Belgian companies (see for example Bassilière *et al.*, 2009). A well-designed shift in the taxation burden from labour to energy would be likely to increase employment (Bassilière *et al.*, 2005 and 2009) but admittedly, with automatic wage indexation (Chapter 2), this effect may be limited if the higher prices (due to environmental taxation, though potentially offset by lower labour costs) are translated into wage increases. Simple static calculations show that revenues equal to 10-15% of labour taxation could be obtained from a combination of: increasing environmental taxation to the EU average level; a carbon tax (non-ETS segment); and taxing away of windfall gains from free permits (ETS) and scrapping subsidies and tax reductions for transport, energy prices and energy-efficiency investments. Concerns about the regressive nature of environmental taxes (poorer households tend to have a higher share of energy in the consumption basket) could be addressed by focusing the reductions in labour taxation on the lower end of the income distribution. Still, many of the existing measures (in-kind benefits such as company cars, fuel cards, energy bills; energy efficiency subsidies) benefit mostly higher-income households; hence their scrapping could increase the progressivity of fiscal policies (HCF, 2009). Finally, higher revenues could also allow for more spending to improve the poor state of nature preservation (Box 3.7).

Box 3.7. **Environmental protection is costly, but should play a more important role**

The strong pressure on the environment comes from dense population, intensive industry, agriculture and transport. Land use reflects the high population density – residential and commercial services take up 19% of land use, second in the EU and two-and-a-half times the EU average. Industry and transport use 6% of land area, twice the EU average. Agriculture takes up 53%, leaving little space for nature. Despite progress in the recent years, Belgium is the OECD country with the lowest surface of protected environmental areas per capita, and among the lowest in terms of protected areas relative to total surface (the first and so far only national park of 57 square km was opened in Flanders in 2006). The level of protection of these areas is generally lower than elsewhere. Together with years of extremely poor surface water quality this has contributed to a situation where the share of threatened species among indigenous fauna and flora are well above that in most OECD countries. The heavy implicit and explicit subsidies to agriculture and land use policies have placed Belgium among the handful of OECD countries where the share of forest land has not grown since 1990, reflecting in part poor take-up of EU agricultural land forestation programmes (OECD, 2007a).

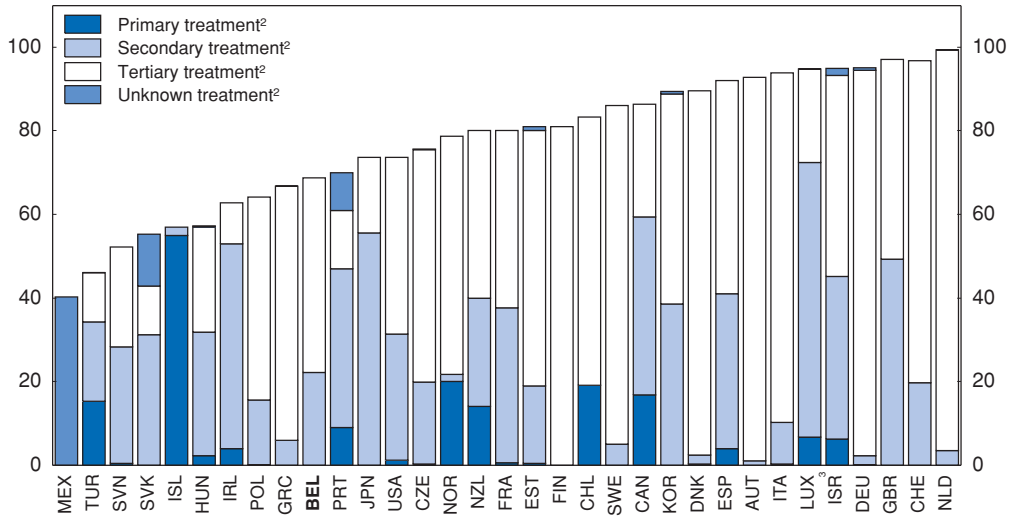
Source: OECD Environmental Data Compendium, World Database on Protected Areas, UN Millennium Development Goal Indicators.

Improvements in the area of water quality are visible, but suffer from a large backlog

Significant attention was devoted to water quality in a previous environmental chapter (OECD, 2001), in part as the exploitation of water resources is among the most intensive in the EU. At the time, both surface and underground water quality were among the poorest in the EU, due to the effective lack of treatment of urban wastewater and very intensive agriculture. Brussels, with roughly 1 million inhabitants, dumped its urban sewage directly to the Senne river. Since then, government efforts have reduced the backlog in urban wastewater treatment. In 2001 the first treatment plant for Brussels, treating a third of its sewage, was put in place. The unsatisfactory situation of the mid-2000s (Figure 3.11) has improved significantly and by 2010 the number of agglomerations with insufficient treatment was reduced to 1 in Flanders and halved to 30 in Wallonia.[21] A large part of the success in Flanders was due to large regional subsidies to municipalities and a special-purpose public private partnership (OECD, 2007c). In 2009, a second treatment plant for Brussels was operational, ensuring that the majority of households in the area is connected to treatment. Nevertheless, by 2010, Belgium still had not implemented the urban wastewater treatment directive, for which it is to be fined.[22] Full compliance is not expected before 2013.

Figure 3.11. **The share of population connected to wastewater treatment is low**

As a percentage of national population,[1] 2009 or latest available



1. The last available year is 2008 for Austria, Czech Republic, Portugal, Mexico, Spain, Turkey and the United States; 2007 for Belgium, Germany and Ireland; 2006 for Canada, Hungary and Sweden; 2005 for Slovak Republic, Switzerland, Iceland and Italy; 2004 for France, 2003 for Luxembourg, 2002 for Finland and 1999 for New Zealand.
2. Primary treatment consists in physical and mechanical processes which result in decanted effluents and separate sludge. Secondary treatment consists in biological treatment technologies and tertiary treatment consists in advanced treatment technologies (chemical processes).
3. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD, *Environment Database*.

StatLink http://dx.doi.org/10.1787/888932459793

Water quality remains poor, with the EU water framework directive not being implemented due to gaps in the harmonisation of definitions (among regions), in monitoring and in measures taken. Less than a fifth of surface waters were classified as not at risk of fulfilling EU ("good status") targets for 2015, one of the poorest performances of the EU15 (EC, 2007 and EEB, 2010). National classifications for 2007-09 show very poor surface and ground water quality, particularly in Flanders (UNECE, 2010). After an improvement in the early 2000s, non-costal bathing water quality returned to poor levels with 13% of areas nationwide (primarily in the south of the country) below minimum standards and monitoring problems (EEA, 2009).

The regional division of powers may complicate the conduct of effective water policies, given that the two main river basins do not follow regional borders. While the Belgian governments are co-operating within international basin bodies, internal co-ordination failure is particularly visible in the Scheldt basin, the recipient of Brussels wastewater (EEB, 2010). Hence, there is a need for either a national body or inter-regional bodies responsible for river basins to be created in order to ensure cross-border co-ordination and facilitate international co-operation. Such a reform would be in line with the requirements of the EU Water directive, which stipulates basin-based river management, but would avoid bureaucratic complications arising from separate river-basin authorities in each of the regions.

Water provision (and sanitation) is a municipality responsibility which is usually delegated to inter-municipal organisations. Currently, all three regions have different water pricing schemes, with a free quota in Flanders and cheap quotas in the two other regions. All three pricing strategies are based on a fixed fee and a variable per-cubic-metre price aimed at reflecting costs of distribution, capital and wastewater treatment. The variable price is lower for large users in all three regions. Given the persistent problems with assuring adequate treatment, it is likely that the incentives for private investors to provide the services are insufficient. This can be improved by reviewing the charges for treatment to ensure polluters pay for the marginal generated externality in the case of (large) enterprises (basing the charge on pollution content of the discharge, as currently done in Flanders). For households, where monitoring and enforcement are likely to be costly, but the pollution load relatively uniform, wastewater treatment charges should remain incorporated in the water price, but transferred directly to the treatment provider (which is already the case in Flanders) rather than to the general regional budget. Overall this may result in increasing the tariff-financing of wastewater collection and treatment infrastructure. Finally, more competitive forces in treatment provision should be encouraged by lower barriers to entry and wider public tendering of contracts.

Agriculture is a major source of water pollution

Belgian agriculture is among the most intensive in the OECD, with particularly intensive animal husbandry and pesticide and synthetic fertiliser use having a negative impact on water quality. Despite being a heavy polluter, the sector benefits from extensive subsidies and preferential tax treatment, to a higher degree than in many OECD countries (OECD, 2010). In particular, federal subsidies aimed at increasing the reliance on bio-fuels (in line with the 20/20/20 goals) come at a high abatement costs (per tonne of CO_2): EUR 200 in the case of biofuels and EUR 600-800 in the case of ethanol – with extreme cases of up to EUR 2 000-4 400 (Kutas *et al.*, 2007). A more efficient strategy would be to impose a strict mandatory share of biofuels in the fuel mix, similarly as in the GC market, and allow

the market to establish the price of individual biofuels. The sector is also fully exempt from excise taxation on fuels and road and motor vehicle taxation, hence is exposed to lower incentives in terms of GHG reduction targets.[23]

In the area of water pollution, to combat phosphorus and nitrogen pollution from fertilisers regional manure management systems introduced over the past decade and have led to substantial improvement (Gybels *et al.*, 2009). Additional benefits could be gained from a common system across the country, particularly if, as has been proposed in Flanders, a system of tradable manure rights is introduced. In this respect, a uniform, country-wide balancing system, with farm-level nutrient (nitrogen and phosphorus) accounts and quotas, could prove an effective way to curb excessive manure and use of synthetic fertiliser. Nutrient surplus above the quota would be subject to taxation. A system of this type is in place in Denmark (OECD, 2007b). Finally, excessive pesticide use should be curbed through an externality tax. The eco-tax on pesticides in place in the 1990s exempted the agricultural sector. This was replaced by a federal tax on pesticides, linked to pollution content (by category), which can be considered a step in the right direction, and by stricter command and control regulation, with some visible shifts to less polluting pesticide. However, the pesticide tax is several times lower for professional users (that is the bulk of users) and generally fairly low, in part due to cross-border leakage considerations.[24] As the effectiveness of a sales tax on pesticide may be mitigated by cross-border trade due to the small country size, it would ideally be co-ordinated with neighbouring countries. If this is not possible, taxing the use of pesticide (rather than purchase) should be considered.

Environmental tools and policies should be co-ordinated and realigned

As mentioned throughout the Chapter, the division of environment-related powers and responsibilities in Belgium is complex and fragmented. The three regions have a large share of responsibilities concerning environmental policies and directly related areas: agriculture, economic policy, energy, transport and R&D (Table 3.8). Health care policy, where many of the consequences of environmental developments eventually occur, is largely federal, though shared with the (language) communities, which also deal with (environmental) education. The federal level has most taxation powers. Each government has sovereign powers in its area of decisions there are no mandatory co-ordination nor binding crisis-resolution instruments, implying the need for intensive co-operation and consultation. A vast number of bodies have been formed for this purpose, such as the National Climate Commission in climate change and the CONCERE/ENOVER in energy. Moreover, as in other member states, a significant share of environmental, agricultural and economic aspects is dealt with at the EU level.

There are clear advantages of delegating selected aspects of environmental policies to the regional level or potentially even the municipality level, given the better ability to adjust policies to the local needs. However, climate change and pollution do not respect borders, and therefore the current set-up increases the burden of environmental policies and reduces their effectiveness, thereby making Belgians poorer overall:

- *The bodies responsible for environmental policies do not have the powers to use the most cost-efficient tools*. The regions lack of taxation power, prevents widespread use of externality taxation. Instead regions revert to more costly and less effective subsidy measures, which often reduce R&D incentives by choosing winning technologies (De Serres *et al.*,

Table 3.8. **Division of responsibilities in environmental and related policies is complicated**

Federal level	Sub-federal level (Regions, unless otherwise indicated)
ENVIRONMENT AND CLIMATE	
• Standards, certificates and labelling for products. • Encouraging sustainable production and consumption. • Negotiating international agreements. • Radiation protection and nuclear waste. • Protection of marine environment.	• Protection of ground, underground, water and air. • Noise pollution. • Zoning laws, housing. • Water policies. • Agriculture.
ENERGY	
• Security of supply. • Nuclear energy (fuel cycles and R&D). • Off-shore wind energy. • Production and transmission of energy (grid > 70 kV) and large storage infrastructure. • Distribution and transmission tariffs. • Monitoring retail prices (since 2008).	• Promotion of efficient energy use and renewables. • Energy R&D (excluding nuclear). • Distribution (municipalities) and transmission of electricity (grid < 70 kV) and gas. • District heating equipment and networks. • Recovery of waste energy from industry.
FISCAL TOOLS	
• Most taxes, including energy and environmental.	• Environmental subsidies. • Taxation in areas not taxed by the federal level such as vehicle taxes (circulation and registration), euro vignette.
TRANSPORT	
• National railway. • National airport (Brussels).	• Public transport. • Transport infrastructure, water pipelines.
HEALTH	

• Regulation and financing of compulsory health insurance.
• Financing hospitals and heavy medical care.
• Hospital accreditation criteria and professional qualifications.
• Registration and price control of pharmaceuticals.
	• Language-community responsibilities:
	  • Health promotion and education.
	  • Maternity and child health services; aspects of elderly care.
	  • Implementation of hospital accreditation criteria.
	  • Financing of hospital investment.

Sources: International Energy Agency and *OECD Economic Surveys of Belgium* (2007 and 2009).

2010). The result – a multitude of instruments often leading to disappointing results, such as in energy efficiency investments in housing.

- *The administrative borders inhibit the implementation of efficient nationwide policies*. In areas such as water policies, air pollution management or transport policies, regional borders are unlikely optimal boundaries.
- *Smaller markets prevent the exploitation of the economies of scale and scope in environmental policies,* as visible for instance in the existence of (five) separate regional markets for green power certificates, hindering cost-equalisation of renewable energy use across the country.

The division of environment-related responsibilities in a federation has been reviewed in a general context in the previous *Survey* (OECD, 2009a). As a conclusion: *i)* an appropriate division of powers should follow the division of responsibilities so that each government body can fulfil its tasks optimally; and *ii)* in areas where significant economies of scale or scope can be reaped, at the minimum close and swift co-operation should be ensured and moving competencies to the national level could be beneficial. An example of such nation-wide co-operation can be found in case of waste-management (batteries) where a single national entity takes care of collection and recycling (OECD, 2007a).

More rigour in planning and decision-making could facilitate choosing the optimal solutions for reaching environmental goals. According to a review of federal climate change policies, the lack of proper evaluation of the costs and effects of (federal) measures means that decisions have little to do with economic reasoning (Cour des Comptes, 2009). Independent critical evaluations of regional environmental policies and the interaction with policies at different levels are hardly available. In order to introduce more economic rationale into environmental policy design, comparable cost benefit analysis (CBA) of all important environment-related policies (and major investments above a certain threshold) should become mandatory.[25] The independent analysis should apply national guidelines on parameters and methodology and include the evaluation and assignment of monetary values to environmental effects, for example on human health. Decisions to deviate from the CBA conclusions should be necessarily publicly explained. *Ex post* analysis should follow up on existing and future projects and policies to provide feedback for improvement of the CBA tool itself.

Box 3.8. **How to achieve greener growth in the Belgian federation**

Reduce greenhouse gas emissions and air pollutants in a cost-efficient manner

- Introduce a carbon tax for the sectors not subject to the EU Emission Trading Scheme (part of industry, transport, housing and services). The level of the tax should be in line with emission reduction commitments. Speed up the introduction of auctioning of the ETS permits and consider taxing away windfall gains arising from the grandfathering of permits. Scrap measures that discourage energy savings (such as exemptions and reductions for large users).
- Unify green certificates (GC's) across the country to replace the five currently existing, to benefit from the economies of scale and scope and ensure that renewable energy is developed where it is most viable. Consider scrapping the minimum prices for various types of renewable energy in order not to promote inefficient technologies and allow the market (under the GC scheme) to decide the price and mix of renewable energy.
- Encourage investment in renewable energy by removing regulatory obstacles and publishing credible paths for the minimum requirements in the energy mix. Consider pursuing the targets for biofuels in a similar system.
- Realign excise taxes on fuels with environmental marginal externalities. Take steps towards more uniform taxation of different uses of the same fuels. Increase the relative taxation of diesel with respect to gasoline to reduce the diesel bias and the associated environmental externalities. Scrap the reimbursement of part of the diesel price for professional use.
- Implement country-wide road pricing for freight. Link distance-based user charges to associate externalities, including pollution (by class of vehicle). Extend the scheme to company cars, and eventually including passenger cars. The scheme would benefit from co-ordination with neighbouring countries. Consider congestion charges, particularly around Brussels, either independently or as part of road pricing.
- Phase out the numerous subsidies to private transport in order not to encourage moving away from the workplace or the excessive use of cars. The commuting allowance, particularly for road transport, should be focused on persons otherwise at risk of dropping out of the job market, and could take the form of a lump-sum allowance.

Box 3.8. **How to achieve greener growth in the Belgian federation** *(cont.)*

- Increase the flexibility and demand-responsiveness of public transport to increase its attractiveness through better co-ordination among regions and the federal train system, lower entry barriers, public tendering and the possibility for operators to propose new routes.
- Drastically reduce the numerous subsidies for energy efficiency investment in housing and for industry. At the least, make sure that measures at different levels of government are co-ordinated in order to reach targets. Focus measures on liquidity constrained low-income households. Improve the energy efficiency awareness among households.
- Phase out the social energy tariffs and VAT reductions in order to expose households to the same marginal energy saving incentives. Replace these with income subsidies for low income households.

Improve water quality

- Delegate responsibilities for water policies to an independent national authority or river-basin authorities.
- Review wastewater treatment charges to ensure polluters pay the full marginal costs of environmental externalities. Encourage more competitive provision of wastewater treatment.
- Introduce a pollution-content based pesticide tax on sales or application. Consider a country-wide manure and synthetic fertiliser management scheme, with balancing farm-level accounts and quotas for nutrients.

The organisation of environmental policies needs to promote cost-efficiency

- Increase the reliance on taxation of environmental externalities (rather than subsidies or command and control measures) to implement environmental policies.
- Reconsider the division of environmental responsibilities and powers in the federation with an aim of assuring: that the responsible bodies have the most cost-efficient tools to achieve their goals (*e.g.* taxation powers); and the exploitation of the economies of scale and scope (*e.g.* in renewable energy).
- Increase the role of economic considerations in environmental policies by introducing compulsory cost-benefit analysis for major investment projects and policies. Agree on national guidelines on parameters and methodology and follow up with *ex post* analysis.

Notes

1. For instance, the Environmental Performance Index, which ranks countries according to fulfilment of established environmental goals, puts Belgium in 88th place among 163 countries – the lowest of all OECD and EU countries (EPI, 2010). According to WWF, Belgium's ecological footprint – a proxy for the unsustainability of resource use – is the fourth highest in the world (WWF, 2010).
2. Regional governments can finance the purchase of carbon emission permits (on the EU ETS market) by emitters, in excess of the allocated permits. In 2010, the Walloon government planned to finance permits for a total of EUR 40-60 million for Arcelor Mittal to restart a blast furnace.
3. The EU's Emission Trading Scheme is a GHG cap-and-trade scheme introduced in 2005 (Norway, Liechtenstein and Iceland also joined the scheme). It covers about 10 000 installations in the energy and industrial sectors, which generate over 40% of GHG emissions in the countries concerned. Emission rights are allocated according to internationally agreed national caps and within the country according to national allocation plans (NAPs) – 96% through grandfathering. The Belgian NAP covers over 40% of projected emissions: roughly 80% of industrial emissions and

97% of emissions from the energy sector. The NAP reserves 8% of emission rights for new entrants. From 2012, the EU scheme will include air transport and increase the emphasis on auctioning (over 50% of permits throughout 2013-20) over grandfathering.

4. According to the Confederation Fiscal Europeen of the 14 main fuels listed by the EU, in Belgium 7 are subject to excise levies at minimum EU requirements and four have slightly higher values. For comparison, in France four fuels are taxed at minimum EU levels, while in Germany and the Netherlands none.

5. The federal government certificates cover the grid above 70 kV.

6. The fifth separate market exists for combined heat and power production in Flanders. The separation is complete aside the agreement to accept Walloon GC's in Brussels on certain conditions.

7. Recalculated to 2010 prices, the scenario also requires a carbon price.

8. CREG (2010b) takes into account all implicit and explicit (federal and regional) government aid in Flanders – tax deductions, investment subsidies, and GC's to calculate the annual returns on equity of 55% for PV, over 100% for onshore wind and biomass and in excess of 1 000% for biomass co-combustion in existing coal plants. A similar study for Wallonia was not possible due to the lack of data.

9. Additional costs with respect to standard technology are defined as 50% of the costs of investment in bio-mass electricity and co-generation and 80% of biomass heat generation. SME's receive 20%, large companies 10% with a limit of EUR 1.5 million.

10. Ownership taxes (registration and annual road tax) are moderate relative to other EU countries. Registration and annual road tax are based related to the engine size and power (so-called fiscal power). Even for very polluting cars the registration tax falls with age.

11. The federal rebate is limited to EUR 4 500 per car. The total cost of the measure in 2010 was EUR 208 million (double that of 2009) – on average almost EUR 2 000 per car. Given the limited availability of cars with low emissions, a large share of the rebate may be pocketed by the producers (HCF, 2009).

12. To the extent there may be an overall case for encouraging the purchase of more fuel-efficient vehicles, as consumers may tend to undervalue the (far-in – the-future) fuel savings relative to purchase costs (OECD, 2009b) – this can be done through purchase taxation (or registration fees) rather than subsidies.

13. In late 2009 the Dutch government (unsuccessfully) attempted to introduce a road pricing scheme to cover all roads and (almost) all vehicles, moving away from fixed vehicle taxation (registration and annual ownership taxes) to a user-pays system of charging road transport. A fixed vehicle-related per-kilometre charge was to be combined with a congestion fee, applicable during peak periods in congested areas. By 2020 the scheme was to bring significant benefits in terms of traffic and the environment, with expectations of a mildly positive effect on GDP. Technical solutions were based on fitting vehicles with an onboard device using GPS technology to track travelled distance and relay the information via GSM technology to the operator. The latter would issue a monthly bill to the vehicle owner, with information restricted for privacy reasons. The roll-out was to start with freight in 2012 and cover passenger vehicles by 2017.

14. The employer pays the annual bills, and the employees are taxes as if they received a lump sum income of EUR 370 in case of electricity, EUR 740 for heating. In case of management personnel the amount subject to taxation is twice as high. This amount has been increasing fairly rapidly in the recent years.

15. HCF also noted that given the very limited competition in many of the subsidised areas (*e.g.* energy audits, installation of equipment) suppliers are likely to take over a large part of the subsidy – reducing the effect on households' behaviour. Moreover, the division of powers obstructs the flow of these services – licenses for installation of facilities (*e.g.* PV) and audits issued in one region are not recognised in the other.

16. For example in Wallonia, 70% of owner occupied housing and only 50% of rented housing is classified as good or very good standard (Carlier *et al.*, 2007).

17. Part of is be due to Brussels-specific reasons – an urban character of housing (more blocks of flats), more rented housing and more social tariff benefiters. Data for Flanders show that just above half of survey respondents heard of the federal tax reductions, most of them in the higher income groups (Cour des Comptes, 2009).

18. During 1990-2009, Belgian non-ETS GHG emissions grew by 2.5%, while ETS emissions fell by 21%.
19. Establishing an optimal carbon price is subject to the enormous uncertainty surrounding the economic effects of GHG emissions and climate change, to materialise decades and centuries ahead. Meta-analyses show a vast range of estimates – a mean price of a tonne of CO_2 from a survey of 232 estimates is around EUR 60 (2010 prices) and the median around EUR 30, with extreme values not being uncommon (Tol, 2009, Kuik *et al.,* 2009). Simulations performed for Belgium show that achieving 2020 goals would require a carbon price of EUR 37 per tonne in the ETS segment and EUR 28 per tonne in the non-ETS segment (Bassiliere *et al.*, 2008, adjusted to 2010 prices).
20. One of the concerns with electricity producers paying the price of CO_2 emissions is that wholesale electricity prices are set reflecting the marginal price of the most expensive production site operating. The carbon price increases this marginal price and thus creates a windfall gain for nuclear producers. In principle, (part of) this profit can be taxed away, but in practice not for imported energy.
21. The assessment is done by the European Commission in light of the 1991 Urban Wastewater Treatment Directive. Under the legislation, all urban waste water generated by agglomerations of over 10 000 inhabitants should be collected and treated before being discharged. Belgium has designated its entire national territory as a "sensitive area", the treatment must be more stringent to significantly reduce phosphorous and nitrate levels in waters before they are discharged.
22. In June 2010 the Commission has asked the Court to impose a lump-sum fine of more than EUR 15 million and a daily penalty payment of nearly EUR 62 000.
23. Nevertheless, the majority of agricultural GHG emissions take the form of methane (from enteric fermentation and manure management) and nitric oxide (soil and manure management).
24. A reason sometimes cited to back a higher tax for non-professionals is the fact that they may use pesticides in a more harmful way (e.g. due to poor awareness).
25. At the moment cost benefit analysis (CBA) is generally done at the regional level for investment major projects (as this is where they usually occur). Environmental Impact Assessment, an EU requirement, is less analytically rigorous and concerns only environmental impact.

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ANNEX 3.A1

Price elasticities of fuel demand

Theoretical and empirical impacts of a price increase on fuel demand

Fuel prices have an impact on consumption, but its scope is unclear

The reaction of fuel consumption to price changes has been a major research topic over the last decades, given the great importance of transport for economic activity.[1] In the 1970s and 1980s, most studies were concerned with the impact of the oil price shocks in 1973-74 and 1978-79 and the dependence of OECD countries on imported oil, while later studies focus more on the possibilities to bring down GHG emissions by increasing fuel taxes. In theory, the impact of such a tax increase is simple to evaluate. In the basic microeconomic market model, presuming an infinitely elastic supply and an absence of leakage in the form of "fuel tourism", a tax increase is fully transmitted to prices and brings quantities down. The scope of this reduction only depends on the price elasticity of demand (Box 3.A1.1), and this elasticity also determines the consequences of the tax change for GHG emissions and fiscal revenues.

European countries are indeed using taxes on mineral fuels in order to bring emissions down. In Belgium, the creation of a special energy levy in 1993 (extended to diesel in 2003) and the "positive" ratchet mechanism point in that direction. However, the success of such a policy depends on the price elasticity of demand. It has often been argued that, as transport needs cannot be compressed, fuel demand is inelastic and almost does not react to prices. Plotting Belgium's total fuel consumption and the price of total fuel (Figure 3.A1.2) does not completely confirm this. There has been a steady upward trend in consumption since 1970, which is likely to be related to rising income. Nevertheless, there seem to be some reactions to the oil price increases in the 1970s, in 1990-91, in 2001 and in 2005.

The econometric literature yields a small, but significant price elasticity

- Determinants of fuel demand and basic methodology

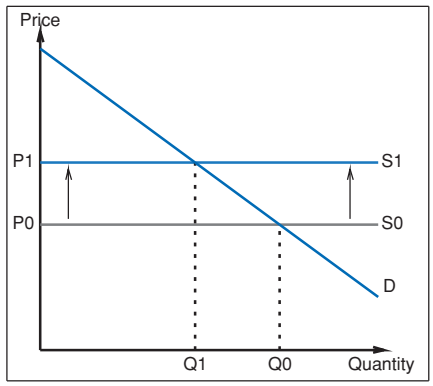
In the basic microeconomic model presented above, demand depends on the fuel price and on income. However, a number of other factors are potentially relevant, and therefore, most authors start by analysing the determinants of fuel demand, often considering the following accounting identity, established notably by Baltagi and Griffin (1983):

$$F = \frac{F}{KM} * \frac{KM}{C} * C \quad (3)$$

Box 3.A1.1. **Theoretical consequences of a tax increase on the road fuel market**

On the market for road fuel, the consequences of a tax increase normally depend on the characteristics of both the demand and the supply curve, *i.e.*, on the price elasticity of demand and supply. However, on the international oil market, the demand of a small country such as Belgium will most likely not influence the price: thus, it is a common assumption (Wasserfallen and Güntensperger, 1988, Haughton, 1998) to suppose that on the national market for road fuels, supply is infinitely elastic (*i.e.*, the supply curve is horizontal). Therefore, a tax increase, shifting the supply curve upwards (from S_0 to S_1), is entirely transmitted to prices. The decrease in quantities (Q_0-Q_1) then only depends on the shape of the demand curve (Figure 3.A1.1).

Figure 3.A1.1. **The impact of an increasing excise tax**



Arithmetically, supposing the demand function Q is sufficiently regular, the response of quantities to a small change in prices ΔP, starting from the equilibrium price P_0, is given by the Taylor expansion :

$$Q(P_0 + \Delta P) = (Q(P_0) + \Delta P * Q'(P_0) + o(\Delta P) \quad (1)$$

which then gives

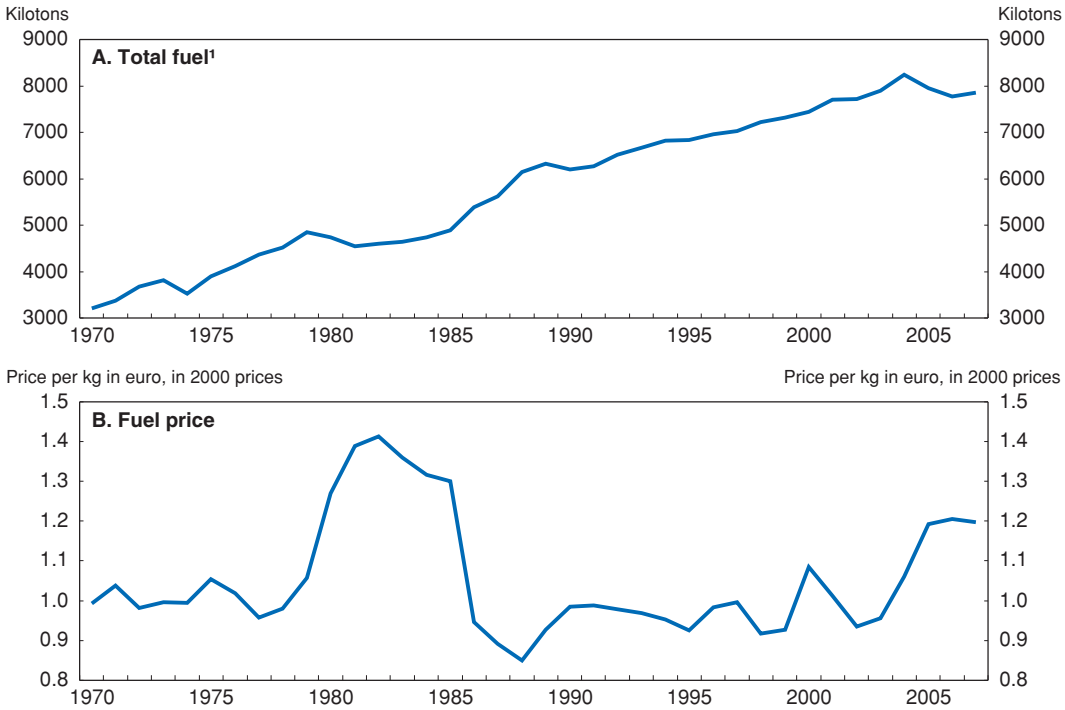
$$\frac{Q(P_0 + \Delta P) - (Q(P_0)}{Q(P_0)} \approx \frac{\Delta P}{P_0} * \left(Q'(P_0) * \frac{P_0}{Q(P_0)} \right) = \frac{\Delta P}{P_0} * \varepsilon_p \quad (2)$$

In this equation, ε_p is the price elasticity of demand: when the price increases by 1%, demand will fall by $-\varepsilon_p$ %. It is then straightforward to assess the consequences of this fall for GHG emissions and for fiscal revenues.

In this equation, F stands for the total level of fuel consumed during a given time span, KM for the total kilometres driven during the same period, and C for the total number of cars (or, more generally, of vehicles).[2] This decomposition allows analysing behaviour in a precise way, by decomposing the total price elasticity of fuel into three sub-elasticities measuring the response of fuel efficiency (KM/F), car utilisation (KM/C) and of the vehicle stock (C) to a change in prices. However, estimating the three different elasticities is often difficult. Thus, equation (3) is generally only used to get an idea about the determinants of fuel demand. All three variables depend, more or less directly, on the fuel price and on income, but there are also a great number of other determinants:

- Fuel efficiency (KM/F) also depends on technology, car fleet composition and driving styles.

Figure 3.A1.2. **Fuel consumption and prices in Belgium**



1. The "total fuel" aggregate is the sum of diesel and gasoline consumption. Its price is calculated as a quantity-weighted average of the prices of the two (see Schmitz, 2011).

Source: International Energy Agency (IEA).

StatLink http://dx.doi.org/10.1787/888932459812

- Car utilisation (KM/C) also depends on the number of cars per household and on the price of alternatives (such as rail transport, for instance).
- The stock of vehicles (C) furthermore depends on car prices and maintenance costs.

After deciding to include or to exclude those variables in their estimation, researchers generally consider a demand equation of the form:

$$F_t = \beta_0 P_t^{\beta_1} Y_t^{\beta_2}$$

In this equation, F stands for the quantities of fuel consumed, P for the real price of fuel, and Y for real income (in this most basic model, no additional variables are used). When this model is log-linearised, it yields the econometric test equation (in natural logarithms):

$$f_t = \beta_0 + \beta_1 p_t + \beta_2 y_t + \varepsilon_t \quad (4)$$

This is often extended to a partial adjustment model, in order to capture long-run effects that build up over time:

$$f_t = \beta_0 + \beta_1 p_t + \beta_2 y_t + \beta_3 f_{t-1} + \varepsilon_t \quad (5)$$

Some estimation issues: spurious regressions, simultaneity and demand shifts

The log-linear model is usually estimated by varieties of OLS. However, review articles, while finding that methodology influences results, have found no consistent pattern: there

appears to be no method giving systematically higher or lower results (Hanly *et al.*, 2002). The time series used for the estimation of the price elasticity of fuel demand are typically not stationary: for instance, Belgian fuel consumption is clearly drifting over time (Figure 3.A1.2). Therefore, estimation could yield "spurious regressions" with seemingly significant, but in fact meaningless results (Granger and Newbold, 1974). Indeed, when fuel quantities, fuel prices and income all have a unit root, OLS estimation of equation (4) gives consistent estimates only if those three variables are cointegrated.[3] In the presence of series with a unit root, econometric studies therefore have to test for the stationarity of the residuals from OLS estimation of equation (4), as is done in Bentzen (1994) or Hughes *et al.* (2006). Alternatively, the considered series need to be rendered stationary by estimating in first differences, as done by Wasserfallen and Güntensperger (1988).

Another major estimation issue is common to all demand estimations: simultaneity, *i.e.* a correlation between the price and the residual term, caused by the fact that quantities and prices are jointly determined on the market. However, when assuming an infinitely elastic supply, simultaneity is excluded from the start. This assumption can be challenged from a methodological viewpoint (see for example Kennan, 1989), but it appears to be fairly common in the literature, at least for small countries.[4] A related issue is the stability of demand. If the demand curve shifts over time because of variables that are not included in the analysis, it is not possible to estimate a single price elasticity. Some studies therefore test for breaks and argue that price elasticity evolved over time.

Main findings

The main findings of the literature are summarised in a number of major reviews, such as Espey (1998), Hanly *et al.* (2002) or Brons *et al.* (2008). Most studies find short-run price elasticities of around –0.3 and long-run elasticities of around –0.6: thus, fuel (or gasoline) demand is considered to be inelastic, but not insensitive to prices. Hanly *et al.* derive two other stylised facts: first, long-run elasticity is higher than the short-run figure: effects build up over time rather than fading out. Second, when prices increase, fuel consumption is reduced more than distance driven: short and long-run elasticities for traffic are respectively –0.1 and –0.3. This gives some idea about the importance of the different effects regrouped in total price elasticity, as the remaining adjustment must be due to fuel efficiency.

Table 3.A1.1. **Mean price elasticities from literature reviews**

	Espey (1998)	Hanly *et al.* (2002)	Brons *et al.* (2008)
Short-run price elasticity	–0.26	–0.25	–0.34
Long-run price elasticity	–0.58	–0.64	–0.84

In Belgium, estimates for short-run price elasticity, as calculated for instance by Sterner *et al.* (1994) or Baltagi and Griffin (1997) appear to be close to these averages, while long-run estimates fluctuate more. However, those specific studies are relatively old and do not consider the 1990s and the 2000s. Therefore, the next section estimates the price elasticity of fuel demand for Belgium and for eight other European countries.

Estimates of a price elasticity for Belgium and other European countries

Data sources, unit roots and cointegration

Annual data for the period 1970-2007 have been gathered for nine European countries (Belgium, Germany, Denmark, Spain, France, Italy, Luxembourg, the Netherlands and the United Kingdom). The quantities of gasoline and diesel used in road vehicles, as well as their real prices are taken from the International Energy Agency (IEA). The series for total fuel (F) is then defined as the sum of diesel and gasoline consumed,[5] and the price (P) of this aggregate is a quantity-weighted average of diesel and gasoline prices. Finally, real gross national income (Y) is taken from the OECD. A detailed description of the data used can be found in Schmitz (2011).

The simplest model of fuel demand, described by equation (4), is considered first. Most of the variables of the dataset appear to have unit roots (as illustrated for instance in Figure 4), and econometric testing confirms this: the augmented Dickey-Fuller (ADF) test cannot reject the null hypothesis of a unit root at the 5% level for almost all series. However, the Engle-Granger procedure shows cannot reject the null hypothesis of no cointegration (except Spain). Other cointegration tests confirm this finding, and adding a linear time trend to the test equation does not change it, except for the Netherlands (all results for the unit root and cointegration tests can be found in Schmitz, 2011). Thus, there appears to be no consistent long-run relationship among the variables.[6]

Estimates of a short-term price elasticity from first difference equations

In the absence of cointegration, the model of equation (4) can be estimated in first differences, in order to capture short or medium-run relationships. The econometric test equation thus becomes:

$$\Delta f_t = \beta_0 + \beta_1 \Delta p_t + \beta_2 \Delta y_t + \varepsilon_t \quad (6)$$

First differences of the variables considered are indeed found to be stationary in most cases. For some countries (such as France and Germany) they are however only trend-stationary, as their fuel consumption has a marked U shape. The residuals of the first-difference regressions for those countries thus also have a trend. Accordingly, a linear trend is added in the estimation (*i.e.*, de trending is provided) to make residuals stationary. Finally, dummies for the first oil price shock, in which the embargo of oil exporting countries caused a disruption in quantities that was disconnected from prices and incomes, are also included. The results for the three models are shown in Table 3.A1.2. For most countries, they generally yield significant elasticity estimates with the expected signs (negative for prices, positive for income). Price elasticities are relatively low in comparison with previous studies, but not out of line with them. Belgium has, an average price elasticity compared to the considered countries, ranging around –0.18. The results thus confirm the inelastic nature of fuel demand: after a 10% increase in prices, fuel demand would decrease, all other things held equal, by approximately 1.8%.

The three models tested are:

M1: $\Delta f_t = \beta_0 + \beta_1 \Delta p_t + \beta_2 \Delta y_t + \varepsilon_t$

M2: $\Delta f_t = \beta_0 + \beta_1 \Delta p_t + \beta_2 \Delta y_t + \beta_3 D1974 + \beta_4 D1975 + \varepsilon_t$

M3: $\Delta f_t = \beta_0 + \beta_1 \Delta p_t + \beta_2 \Delta y_t + \beta_3 D1974 + \beta_4 D1975 + \beta_5 t + \varepsilon_t$

These estimates are short-term values, showing the reaction of quantities to a price change within a given year. However, as they influence long-term choices (purchase of a

car, of a given car type, etc.) fuel prices are likely to have long-term impacts that are not captured by the model above. One way to estimate them would be to add lags of income or prices to the above equations. However, when limiting the number of lags for each variable to 2, this generally did not improve the model (judging by the Akaike Information Criterion) or produced insignificant estimates. Estimating the incidence of "leakage" to neighbouring countries and the impact of vehicle fuel economy on fuel demand also led to insignificant results, as shown in Box 3.A1.2.

D1974 and D1975 are the oil shock dummies. As equations are in first differences, two dummies are needed to account for the year 1974: the change from 1973 to 1974 (labelled D1974) and the change from 1974 to 1975 (labelled D1975).

Table 3.A1.2. **Results of first-difference regressions**

	Belgium			Germany			Denmark		
Dependent variable: Δf	M_1	M_2	M_3	M_1	M_2	M_3	M_1	M_2	M_3
c	0.02	0.01	0.03	0.00	0.00	0.03	0.02	0.01	0.01
Δp	–0.17**	–0.19***	–0.17***	–0.16***	–0.12**	–0.11**	–0.12	–0.18***	–0.18***
Δy	0.29	0.73***	0.66***	0.85***	1.01***	0.72***	0.63***	0.39**	0.40**
D1974		–0.12***	–0.13***		–0.02	–0.05**		–0.07***	–0.06**
D1975		0.12***	0.10***		0.07**	0.04*		0.10***	0.10***
t			–0.0**			–0.00***			0.00
Observations	37	37	37	37	37	37	37	37	37
R-Squared	0.19	0.65	0.71	0.46	0.57	0.71	0.36	0.64	0.65
DW	2.19	1.66	2.06	1.69	1.50	2.11	1.76	1.28	1.30
	Spain			France			Italy		
Dependent variable: Δf	M_1	M_2	M_3	M_1	M_2	M_3	M_1	M_2	M_3
c	0.04	0.03	0.05	0.00	0.00	0.03	0.02	0.01	0.03
Δp	–0.19	–0.17	–0.10	–0.13**	–0.11*	–0.08*	–0.31***	–0.21***	–0.20***
Δy	0.23	0.53	0.95*	0.96***	1.03***	0.84***	0.48**	0.85***	0.57***
D1974					–0.01	–0.04**		–0.10***	–0.11***
D1975		0.14***	0.12**		0.03***	0.01		0.07***	0.04*
t			–0.00			–0.00***			–0.00***
Observations	33	33	33	37	37	37	37	37	37
R-Squared	0.11	0.31	0.36	0.60	0.63	0.80	0.47	0.74	0.79
DW	1.45	2.19	2.28	1.20**	1.20**	1.83	2.29	1.76	2.13
	Luxembourg			Netherlands			United Kingdom		
Dependent variable: Δf	M_1	M_2	M_3	M_1	M_2	M_3	M_1	M_2	M_3
c	0.05		0.07	0.02	0.01	0.02	0.01	0.01	0.03
Δp	–0.01		–0.01	–0.15**	–0.12*	–0.12*	–0.15***	–0.20***	–0.12**
Δy	0.22		0.21	0.48*	0.65**	0.65***	0.37***	0.28*	0.42***
D1974					–0.08***	–0.08***		–0.04*	–0.04**
D1975					0.07**	0.07**		0.03	–0.01
t			–0.00			–0.00			–0.00***
Observations	28		28	37	37	37	37	37	37
R-Squared	0.02		0.03	0.20	0.46	0.48	0.45	0.52	0.69
DW	0.98**		0.98**	1.99	1.97	2.04	1.59	1.48	2.13

***: significant at 1%, **: significant at 5%, *: significant at 10%. Where the Durbin-Watson (DW) statistic permitted to reject autocorrelation at 5%, Newey-West standard errors are used.

Box 3.A1.2. **The impact of potential omitted variables**

The absence of cointegration among total fuel quantities, the real fuel price and real income could be explained by an omitted variable bias. Among those, technological progress improving the fuel economy of vehicles could be potentially decisive (other variables, such as the total number of vehicles, as suggested by Wasserfallen and Güntensperger, 1988 proved insignificant). Technological progress is however difficult to capture: any measure of the average fuel economy of the vehicle stock is necessarily endogenous, as it incorporates consumers' vehicle choices shaped by fuel prices and income. Two fuel economy variables are considered here: the average fuel economy of the vehicle fleet, *i.e.* the ratio between total fuel consumption and total vehicle-km driven, and the fuel economy of new cars as revealed by industry tests. The latter may be less affected by endogeneity (even though the indicator needs to be weighted by new car registrations, thereby reintroducing consumer choices), but covers only part of the vehicle fleet. However, both variables do not yield cointegration for Belgium when they are added to equation (4).

The data on vehicle-km travelled however allows to calculate the price elasticity of the demand for distance travelled, by using vehicle-km (vkm) as the dependent variable and estimating the equation:

$$\Delta vkm_t = \beta_0 + \beta_1 \Delta p_t + \beta_2 \Delta y_t + \varepsilon_t \quad (7)$$

The result is shown in Table 3.A1.3. It confirms the findings of Hanly *et al.* (2002): the demand for vehicle-km is reduced less than the demand for road fuel after a price increase. In Belgium, almost half of the fuel quantity adjustment to higher prices in the short-run is therefore due to greater fuel efficiency, *i.e.*, more careful driving, less fuel-intensive journeys or switching to the most fuel-efficient vehicle.

Table 3.A1.3. **Price elasticity of the demand for vehicle-km**[1]

Dependent variable	Δvkm
c	0.02
Δp	–0.09***
Δy	0.53***
Observations	37
R-Squared	0.39
DW	1.08

1. ***: significant at 1%, **: at 5%, *: at 10%. Due to the value of the DW statistic, Newey-West standard errors.

Fuel tourism, *i.e.* filling up in other countries, can explain why a tax increase in one country may not have the same impact as a uniform oil price increase across a group of countries. An easy way to model this is to include a variable capturing the price difference between the considered country and its direct neighbours in the regression. This has been done for Belgium and the Netherlands, using an average of prices in border states, weighted by the population living in the regions next to the border (arrondissements for Belgium, provinces for the Netherlands). The estimated equation then becomes:

$$\Delta f_t = \beta_0 + \beta_1 \Delta p_t + \beta_2 \Delta y_t + + \beta_3 \Delta \frac{p_t}{pa_t} + \varepsilon_t \quad (8)$$

where pa stands for the price abroad. However, this variable proves to be insignificant in Belgium and in the Netherlands, both for real and nominal prices.

Panel estimation

Instead of considering country-specific time series, the above dataset can also be transformed in an unbalanced panel, with 8 cross-sections and 38 observations for all countries except Spain (which has 34 observations). Luxembourg is excluded from the panel, due to the importance of "fuel tourism". Panel estimation has several advantages over single-equation time series analysis: it increases the amount of information and thereby the efficiency of the estimates and it allows eliminating unobserved heterogeneity. In the case of fuel demand estimation in particular, Baltagi and Griffin (1997) argue that "using a root mean square error criterion, the efficiency gains from pooling appear to more than offset the biases due to intercountry heterogeneities [for the parameters to estimate]". Thus, even if the single-equation estimates shown above do not appear implausible and vary much less across countries than those of Baltagi and Griffin, there is a case for panel estimation.[7]

Theoretically, the absence of cointegration among total fuel, real income and real fuel prices in most countries, as shown above, does not imply the absence of panel cointegration. Thus, the corresponding tests have been performed (all results can again be found in Schmitz, 2011). The panel unit root tests indicate the presence of a unit root in the three relevant variables, but the Pedroni (1999) panel cointegration tests tend to reject cointegration. Therefore, the panel equivalents of equations (4) and (5) could yield spurious regressions, and the first differences of the relevant time series (which are found to be stationary) are again considered. The following equation is estimated:

$$\Delta f_{it} = \beta_0 + \beta_1 \Delta p_{it} + \beta_2 \Delta y_{it} + c_i + \varepsilon_{it} \quad (9)$$

using the fixed effects estimator (*i.e.*, pooled OLS estimation on the data transformed by a within transformation).[8] The results are shown in Table 3.A1.4.

Table 3.A1.4. **Results for fixed-effect panel estimation**[1]

Dependent variable	Δf
c	0.01
Δp	–0.17***
Δy	0.51***
Observations	8 x 37[2]
R-Squared	0.32
DW	1.81

1. ***: significant at 1%, **: significant at 5%, *: significant at 10%. The estimator used is the panel fixed effects estimator.
2. 37 observations for all countries, except for Spain (33).

With the exception of Italy, the price elasticities found in the single-country analysis were already relatively similar, between –0.12 and –0.20. It is therefore not surprising that panel estimation again yields a significant short-term price elasticity of comparable magnitude, estimated at –0.17. In contrary to Baltagi and Griffin (1997), single-country analysis thus performs relatively well in comparison with the panel. A possible explanation for this could be that the first-difference series used above already permitted to eliminate unobservable country-specific fixed effects in levels. In turn, the fixed effects in growth rates estimated for the panel appear to be relatively small for most countries (and in particular for Belgium).

Income elasticities also appeared to be relatively close across countries in the single-country analysis (Table 3.A1.2). To highlight the situation for price elasticity, it is possible to estimate an equation with common income elasticity, but country-specific price elasticities. This exercise reveals again that Belgium has an average price elasticity in international comparison (Table 3.A1.5).

Table 3.A1.5. **Results for fixed-effect panel estimation with country-specific price elasticities**[1]

Dependent variable	Δf
c	0.01
Δp (Belgium)	–0.17***
Δp (Germany)	–0.18***
Δp (Denmark)	–0.14*
Δp (Spain)	–0.16**
Δp (France)	–0.16**
Δp (Italy)	–0.31***
Δp (Netherlands)	–0.15**
Δp (United Kingdom)	–0.14**
Δy	0.52***
Observations	8 x 37[2]
R-Squared	0.33
DW	1.78

1. ***: significant at 1%, **: significant at 5%, *: significant at 10%. The estimator used is the panel fixed effects estimator.
2. 37 observations for all countries, except for Spain (33).

Lags of prices and income were generally found to be insignificant for individual countries (see above). However, adding lagged explanatory variables to the panel equation (9) improves estimation results. This difference can be explained by the greater efficiency of panel estimation. In particular, the significant lags show that the effects of price increases are not limited to the current year, and give an idea of their medium-run impact (Table 3.A1.6). Overall, medium-run price elasticity appears to be somewhat larger than the short-run figure: for the entire sample, it is estimated at –0.22 (the sum of the significant price variables in Table 3.A1.6).

Overall, empirical estimations thus indicate that Belgium has a small, but significant short-run price elasticity of fuel demand, roughly in line with the average across the analysed countries. Panel estimation also hints toward the existence of a somewhat larger medium-run price elasticity.

Assessment of the impact of an increase in fuel taxes

The empirical estimations above indicate that the short-term price elasticity of fuel demand in Belgium is around –0.18. Panel estimations show that in the medium-run, the reaction of quantities to prices is approximately 30% larger than in the short-run, which would imply a medium-run price elasticity of –0.23 for Belgium. These two figures permit to extrapolate the impact of different tax increases. Table 3.A1.7 thus shows the changes in fuel consumption, GHG emissions and fiscal revenues when the government decides to trigger an increase in real prices of respectively 10, 20 and 30%.

This set of estimations indicates that in the short and medium-run, an increase in fuel taxes will only have a small effect on fuel demand and therefore on GHG emissions, but is

Table 3.A1.6. **Results for fixed-effect panel estimation with lags of the explanatory variables**[1]

Dependent variable	Δf
c	0.01
Δp	–0.17***
$(\Delta p)_{-1}$	–0.05**
$(\Delta p)_{-2}$	–0.03
Δy	0.45***
$(\Delta y)_{-1}$	–0.08
$(\Delta y)_{-2}$	0.19**
Observations	8 x 37[2]
R-Squared	0.37
DW	2.22

1. ***: significant at 1%, **: significant at 5%, *: significant at 10%. Panel fixed effects estimator. The model chosen minimises the Akaike Information criterion for all possible models allowing at most two lags of the explanatory variables.
2. 37 observations for all countries, except for Spain (33).

Table 3.A1.7. **Different scenarios for fuel tax increases in Belgium**[1]

		Scenario 1	Scenario 2	Scenario 3
Real price increase		**10%**	**20%**	**30%**
Absolute increase in real taxes[2]		0.10 EUR/l	0.20 EUR/l	0.30 EUR/l
Final real price[2]		1.10 EUR/l	1.20 EUR/l	1.30 EUR/l
Decrease in fuel consumption	Short-run	140 Kt	280 Kt	420 Kt
	Medium-run	180 Kt	360 Kt	540 Kt
Emission reductions, in billion EUR (In brackets: % of 2007 level)	Short-run	440 Kt (–1.8%)	880 Kt (–3.6%)	1 320 Kt (–5.4%)
	Medium-run	560 Kt (–2.3%)	1 120 Kt (–4.6%)	1 680 Kt (–6.9%)
Additional real fiscal revenues, in billion EUR (In brackets: % of real GDP in 2007)	Short-run	0.8 (0.3%)	1.6 (0.6%)	2.4 (0.8%)
	Medium-run	0.8 (0.3%)	1.6 (0.5%)	2.3 (0.8%)

1. Additional assumptions: All monetary figures are given in euro, at 2000 prices. The emission factor of fuel is 3.1 tons of CO_2-equivalent per ton of fuel (see above). Real GDP is taken from the *OECD National Accounts Database*.
2. As in all empirical calculations, quantities and prices were considered in kg for the calculations. However, to give more practical figures, the table indicates prices per litre.

approximately in line with results obtained from a more general macroeconomic model (Logghe *et al.*, 2006). This effect is not negligible, but in a scenario where income and transport needs continue to grow, it will probably only be able to offset part of the increase in emissions. On the other hand, the limited decrease in fuel consumption also implies that the additional revenues collected by the state are large. The fiscal revenues calculated here are only rough estimates, and their exact magnitude should be interpreted with care: while fuel tourism was found to be insignificant in the estimation above, this applied to a situation where price deviations between Belgium and other countries were not extraordinarily large. A unilateral Belgian price increase by 20 or 30% could change this situation and make fuel tourism a significant problem. Thus, some degree of European harmonisation for these measures would be desirable. Further consequences, such as potential welfare losses of the overall economy due to higher transport costs cannot be assessed in this simple framework.

Notes

1. The annex was written by Tom Schmitz, Master student at HEC and the Ecole Polytechnique.
2. The large majority of studies focuses on gasoline, or on an aggregate of gasoline and diesel, but only seldom on diesel alone. This is probably due to the focus of the literature on the United States, where gasoline continues to dominate. The shift of diesel to gasoline, and potential substitution issues, are thus only rarely modelled (for exceptions, see Chandrasiri, 2005, who uses a SUR methodology for joint estimation of gasoline and diesel demand, or Pock, 2010).
3. The same is true for equation (5): Pesaran and Shin (1999) point out that an autoregressive distributed lag model (ARDL) of this type is only meaningful if the underlying variables are cointegrated.
4. For the United States, where this assumption is more fragile, some studies rely on instrumental variable estimation (see for instance Hughes *et al.*, 2006 and Davis and Kilian, 2009).
5. All countries included in the analysis have experienced a shift from gasoline to diesel, which in fact began even before 1990 (Schmitz, 2011). An estimation of diesel or gasoline demand ignoring this shift will thus suffer from a strong omitted variable bias, even when a time trend or the price of the other fuel are included in the regression. In order to overcome such effects, the present analysis is conducted with respect to total fuel. For emissions, this mix of the two fuels is not problematic: series are expressed in kilotons, and the GHG emissions of one kiloton of gasoline and one kiloton of diesel are roughly equal.
6. This could be explained by an omitted variable bias or a behavioural shift that changed the parameters of the relationship. However, even for a shorter sample (1978-2007), the results remain identical.
7. In their regressions for individual countries, Baltagi and Griffin find for the period 1960-90 short-term price elasticities between –0.05 (United Kingdom) and –0.31 (Netherlands) for the eight countries of the present analysis. Their long-term elasticities range between –0.21 (United Kingdom) and –0.22 (France). The differences with the estimates shown in Table 3.A1.2 could be due to estimation methods (notably, the use of first differences in the present analysis) or even to spurious regressions (as the drifts in the underlying data and the cointegration issue are not addressed by Baltagi and Griffin).
8. Note that even though the data are in first differences, the estimator used is not the first-difference estimator of equation (9). The latter yields almost identical results for price elasticity (in turn, coefficients for income appear to be different, which may be due to failure of the strong exogeneity assumption, *i.e.*, a correlation between income and the error term). The existence of a fixed effect is not incompatible with the fact that the data is expressed in first differences, because the fixed effect applies to growth rates and not to levels. Fixed effects are chosen over random effects as it cannot be excluded that individual unobserved factors affecting the growth rates of a country are correlated with explanatory variables.

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Glossary

A&R	Assessment and recommendations
CBA	Cost-benefit analysis
CIT	Corporate income tax
CO_2	Carbon dioxyde
EC	European Commission
ECOFIN	Economic and Financial Affairs Council of the European Union
EITC	Earned income tax credit
ETS	Emission trading scheme
EU	European Union
EU15	EU members prior to enlargement in 2004
EU19	EU member countries that are also members of the OECD, except Estonia and Slovenia
EULFS	European Union labour force survey
GC	Green certificate
GDP	Gross Domestic Product
GHG	Greenhouse gas
HCF	High Council of Finance
IEA	International Energy Agency
IMF	International Monetary Fund
IWW	Inland waterways
LIFO	Last-in first-out
LPG	Liquefied petroleum gas
LULUCF	Land use, land-use change and forestry
NBB	National Bank of Belgium
NO_x	Nitrogen oxides
ONEM	Belgium national employment office
PAYG	Pay as you go
PES	Public employment service
PISA	Programme for International Student Assessment
PPP	Purchasing power parities
R&D	Research and development
SP	Stability programme
TPES	Total primary energy supply
UB	Unemployment benefits
USD	United States dollar
VAT	Value added tax
VET	Vocational education and training

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