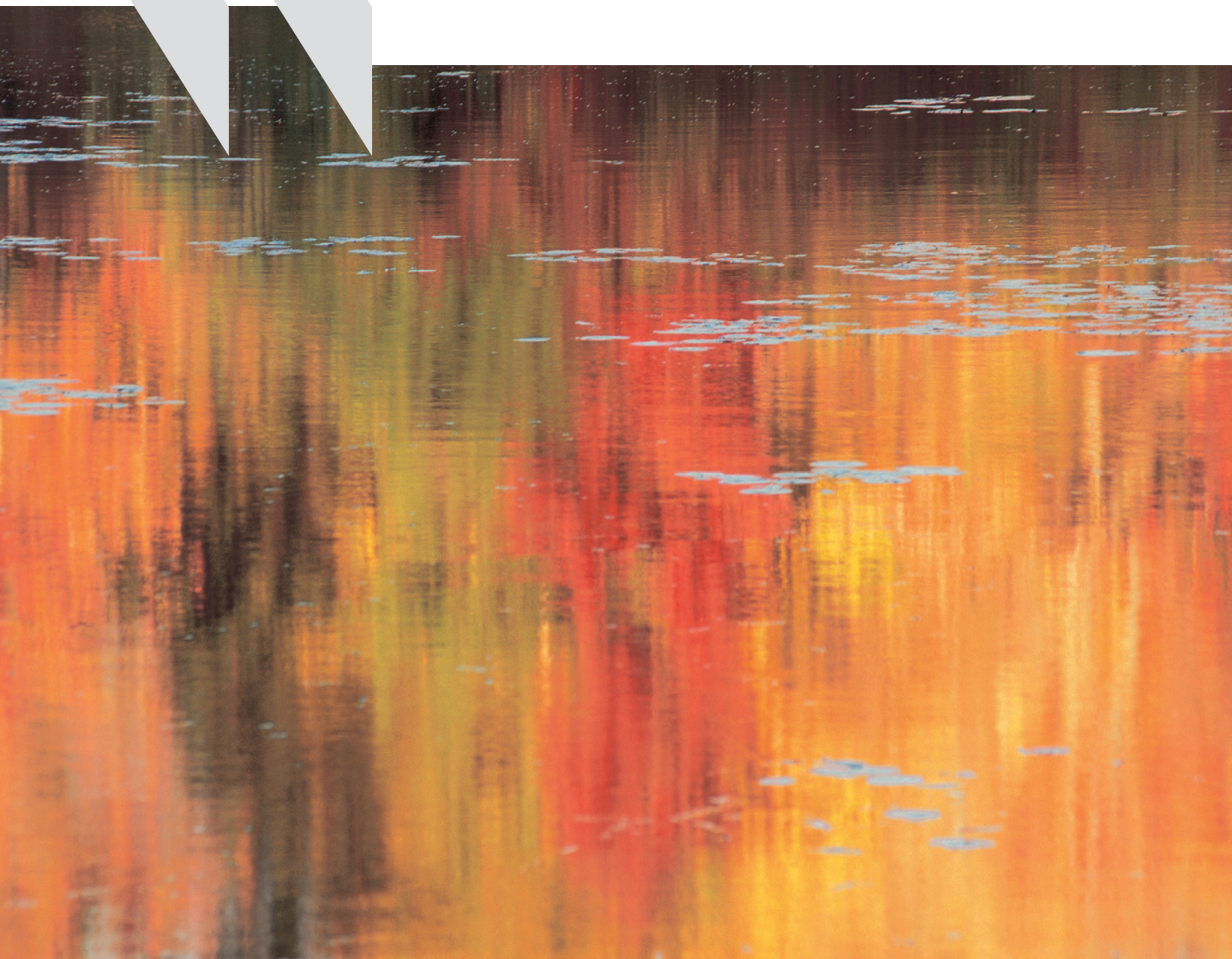




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BASIC STATISTICS OF THE SLOVAK REPUBLIC
(2009)

THE LAND

Area (km ²)	49 037	Inhabitants in major cities	
Agricultural area (km ²)	19 303	Bratislava	431 061
		Košice	233 880
		Prešov	166 905
		Nitra	164 597

THE PEOPLE

Population (thousands)	5 418	Life expectancy at birth:	Males	71.3
Inhabitants per km ²	110		Females	78.7
Average annual population growth (1999-2009, %)	0.04	Registered unemployment rate (% of the labour force)		11.4
Infant mortality (per thousand live-births)	5.65	LFS unemployment rate (% of the labour force)		12.1
		Employment (thousands, <i>Labour Force Survey</i>)		2 366

PRODUCTION

Gross domestic product		Gross fixed capital formation	
In EUR million	63 332	In % of GDP	23.6
Per head (in USD, PPP exchange rate)	22 443	Per head (in USD, PPP exchange rate)	5 295

THE GOVERNMENT

Per cent of GDP		Composition of the National Council of the Slovak Republic (June 2010)	Number of seats
General government revenue	33.2	Liberty and Solidarity	22
General government expenditure	41.3	Slovak National Party	9
Gross public debt (Maastricht definition)	35.3	Christian Democratic Movement (KDH)	15
		Slovak Democratic and Christian Union – Democratic Party	28
		SMER – Social Democracy	62
		MOST – HID	14
		Total	150

FOREIGN TRADE

Exports of goods and services, % of GDP	70.1	Imports of goods and services, % of GDP	70.4
Main exports of goods (% of total, 2008):		Main imports of goods (% of total, 2008):	
Machinery and transport equipment	54.0	Machinery and transport equipment	43.0
Manufactured goods	19.7	Manufactured goods	17.0
Miscellaneous manufactured articles	8.9	Mineral fuels, lubricants and related materials	12.8
Others	17.4	Others	27.2

THE CURRENCY

Irrevocable conversion rate (SKK for 1 EUR)	30.126	Currency units per USD (period average):	
		Year 2009	0.72
		October 2010	0.72

Executive summary

The global recession affected the Slovak economy to a greater extent than most other OECD countries, primarily owing to its exposure to world trade and its specialisation in cyclical export goods, notably cars. In tandem with developments in its main trading partner economies, the economy is now recovering at an above average pace. Challenges for re-establishing a sustainable high-growth trajectory are countering the risk of increasing long term unemployment, bringing government finances back on a sustainable path and reaping the benefits of a transition to greener growth.

Emerging from the crisis: challenges for the labour market and fiscal policy

The unemployment rate has risen substantially during 2009 by 3 percentage points to 14%, partly mirroring the large output loss. The main challenge is to prevent a further build-up of long-term unemployment, which was already very high before the crisis. To this end, labour market policies need to be adapted by shifting the priority of active labour market programme spending more towards training measures. In addition, there need to be adjustments to minimum wage regulations and legal extension of collective wage bargaining contracts so that they do not hinder the determination of market clearing wages.

In fiscal policy, the budget deficit will reach around 8% of GDP in 2010, and the government rightly plans a major consolidation effort. The focus should be on reducing government spending, including notably reforms to the first pillar of the pension system, but also by making government operations more efficient. In addition, to secure the necessary tax base, consideration should be given to reducing tax exemptions and raising taxation of immobile bases, such as real estate and environmental externalities. Strengthening fiscal institutions, including by implementing spending ceilings which comprise tax expenditures, and setting up an independent fiscal council, would be helpful in achieving the consolidation targets.

Raising public sector efficiency, notably in healthcare

Given the deterioration in public finances, there is now very little scope for higher spending without re-prioritisation. In such a situation, raising public sector efficiency can free up resources and help to stimulate productivity and thus potential growth. *On the spending side*, raising the efficiency in healthcare should be a priority. This involves reducing the excessive pharmaceutical spending, for example by further fostering generic substitution. Impediments to competition among insurance funds, such as the profit distribution ban, should be reconsidered and the risk-equalisation system should be improved. In addition, caps on out-of-pocket payments should be introduced and the remuneration of physicians reformed. *On the revenue side*, raising the efficiency of VAT collection is urgently needed, plans to unify the collection of tax and social security contributions should be implemented swiftly and the drawing of EU funds needs to become more efficient.

Managing the transition to green growth

The transition to a greener economy, supported by international environmental commitments and national policies, will entail structural changes in consumption patterns and industry structures, but also offers new drivers for potential growth. Slovakia will need to build an effective framework for green growth to maximise the exploitation of cleaner sources of growth and seize the opportunities to develop new green industries, jobs and technologies. This requires addressing environmental externalities by extending environmental taxation and removing subsidies, together with improving the adaptive capacities of the economy through eco-innovation. The latter involves reforms to support innovation and R&D spending, strengthening the protection of property rights and developing the venture capital market. Also, reducing administrative entry barriers in product markets, fostering competition in energy markets and telecommunication, reforming the tertiary education system and developing training and lifelong learning should all be part of a package of reforms to bring about high sustainable growth.

Assessment and recommendations

Major challenges need to be addressed with bold measures on a broad front

Six years after Slovakia initiated a broad ranging series of reforms which generated high growth and rapid convergence the government again finds itself in front of major challenges, albeit within a much less benign international environment:

- The legacy of the crisis is felt on the labour market with record high unemployment and in the government budget with high deficits again.
- The gap in living standards with the more advanced OECD economies calls for efforts to move to a higher trend growth rate.
- International agreements to limit climate change request measures re-pricing energy and emissions, which make challenging calls on the competitiveness of Slovakia's energy-intensive and export-oriented manufacturing sector.
- A worldwide re-orientation towards green growth generates opportunities, which will only be accessible with deep structural changes.

Measures to address these challenges will need to be taken on a broad front and be of a bold nature. Some of these measures are of a cross-cutting, "generic" nature, including a sound macroeconomic policy framework, a competition friendly regulatory environment, labour market clearing wage determination, a growth friendly tax system as well as an education system which makes the most out of Slovak talent. While on the one hand the need for reforms has grown with the size and complexity of the challenges, there are on the other hand important synergies, which potentially increase the return to reforms:

- Fiscal consolidation will not only reduce risk premia and future financing costs, but will also free resources becoming available for new activities, increasing potential growth in a sustainable way.
- Improving the efficiency of the Slovak education system to endow graduates with employable skills will increase the recovery from the crisis as well as facilitate structural change, for example by making growth greener.
- A wage determination system, which allows job seekers to price themselves into the market and employment will help to reduce poverty risks, reduce social expenditure pressures, limit the economic costs of fiscal consolidation, help lower entry barriers for innovative entrepreneurs and increase the efficiency of active labour market measures.
- Fostering competition throughout the economy, in particular in network industries, which supply important inputs will reduce rents, strengthen the purchasing power of households and increase the scope for innovation

- A growth friendly tax system not only lowers the deadweight cost of financing public expenditure, but can also remove obstacles for risky investments with a high rate of return, like innovation expenditures to reap the opportunities of green growth.

The assignment of policies to address the various challenges is presented in the following according to their time horizon: starting with the immediate challenges of overcoming the legacy of the crisis on the labour market and for public budgets, moving to making consolidation more durable by increasing the efficiency of government spending and concluding with the transition to green growth.

The economy is coming out of a deep crisis...

The Slovak economy suffered one of the steepest declines in real GDP among OECD countries during the financial crisis, mirroring developments in world trade on which Slovakia is highly dependent. In contrast to many other OECD economies, there were few domestic imbalances ahead of the crisis. Household borrowing was not excessive, bank lending was prudent and increases in house prices did not lead to a boom in construction activity. In addition, notwithstanding some loss in competitiveness due to currency depreciation of neighbouring countries, the accession to the euro area in 2009 was beneficial for Slovakia during the crisis, not least as increased market confidence has kept financial conditions relatively favourable. The economy is now recovering swiftly, along with the pick-up in world trade, and real GDP may reach its pre-crisis output level during 2011. Nevertheless, the adverse effects of the crisis are substantial, notably in the labour market and the budgetary position. In addition, as in other countries, the crisis is likely to have led to a temporary decline in potential output growth, reinforcing the need to implement growth friendly structural reforms. The new government has rightly embarked on an ambitious reform agenda with an emphasis on fiscal consolidation and improving the framework conditions for economic activity.

... but unemployment remains at very high levels

The number of unemployed has risen sharply during the crisis, notwithstanding an extensive reduction in hours worked per employee, helped by an increased use of working hour accounts. With the unemployment rate now standing above 14% – the second-highest among OECD countries – the main challenge is to prevent unemployment from becoming entrenched and turning into long-term unemployment and, eventually, a decline in labour force participation and social exclusion. Cross-country evidence suggests that the risk of such hysteresis effects is larger in Slovakia than in many other OECD countries. *Countering this tendency may require a reprioritisation of active labour market policies.* Currently, expenditures on such policies are below the OECD average as a share of GDP but rightly focus on job counselling and placement services. However, expenditures on training account for a much smaller share of spending on active labour market programmes than in other countries. As the opportunity costs of training are likely to be smaller (and thus the effectiveness higher) following deep recessions, in particular if the focus is on general skills, *active labour market programmes should be shifted towards training.* By contrast, spending is significantly above the OECD average in some other areas, such as start-up incentives. Evidence for the effectiveness of start-up incentives based on other countries' experience is more mixed. *Slovakia should thus closely monitor the outcomes of this measure and, based on such monitoring, decide whether to reduce spending in this area.*

Wages need to adapt to local labour market conditions

Flexible wage formation mechanisms are essential to restore labour market equilibrium following the rise in unemployment. In this regard, all institutions that may prevent adjustment of wages to local conditions should be reviewed. First of all, this means ensuring that minimum wages do not have adverse effects on employment creation. The level of the minimum wage relative to the median wage in Slovakia has risen over recent years to around the OECD average in 2010. However, due to the pronounced divergences in regional economic development, the minimum wage is much higher in relation to median wages in those poorer regions of the country, which also register above-average unemployment rates. *Significant increases in the minimum wage should be avoided and some differentiation of the minimum wage to deal with pockets of high unemployment considered.* Currently, minimum wages are determined by negotiations between the social partners; however, if no agreement can be reached – as has frequently been the case in recent years – the government sets the level. In order to depoliticise the process, *an independent expert commission should be considered to provide advice on the minimum wage.*

The setting of a national minimum wage also has implications beyond low-income earners. A regulation stipulates that employees in firms not covered by collective wage agreements are subject to a minimum wage that differs per employee, depending on his/her type of work based on a classification of job types by level of difficulty. While the minimum wage level at the lowest level is equal to the national minimum wage, it rises up to twice the national minimum wage for work classified in the highest level. This effective wage floor may have adverse effects on employment creation even for higher paid jobs and also entails a significant administrative burden on companies through the classification of job types. *This regulation should be phased out.*

Legal extension of collective wage contracts to firms that do not participate in collective bargaining may also hinder wage adjustments to regional requirements. Up to 2007, Slovak firms had the right to veto the extension to their firm. However, this regulation was changed subsequently and firms had only very limited grounds to ask for exoneration from legal extension. The new government changed the law and now legal extension of collective wage agreements is made dependent on the consent of affected firms. *While this is a welcome step, ending legal extension might be the best policy.*

The budget deficit has increased sharply

The budget deficit has increased sharply during the crisis, from 1.9% of GDP in 2007 to 7.9% of GDP in 2009; it is estimated to remain broadly at this level in 2010. This reflects both a permanent loss of potential output and the effect of the automatic stabilizers, and to a lesser extent stimulus measures, which amount to around 1% of GDP in total over the period 2009 and 2010. Swiftly reducing the budget deficit should be the policy priority going forward. This is all the more important as government bond markets are increasingly differentiating between countries on the grounds of their fiscal performance. While the debt burden is relatively low in Slovakia, at around 40% of GDP, rapid population ageing, due to a very low fertility rate and increases in life expectancy, will soon significantly raise public expenditures. Against this background, the government's plan for a substantial

consolidation package that is intended to reduce the deficit in 2011 by 2.5 percentage points of GDP (against a no-policy change scenario) is very welcome. This package includes significant expenditure cuts (a reduction in the public wage bill and savings in public procurement) and revenue increases, notably a temporary rise in the standard VAT rate by 1 percentage point to 20%, higher excise taxes and phasing out of some tax expenditures.

Reforms to the pension system are urgently needed

Reforms to the pension system are urgently needed as the first (defined-benefit) pension pillar is clearly unsustainable in view of the impact of ageing. As long as first pillar pension promises depend on future tax increases a meaningful comparison with the performance of the second pillar cannot be made and decisions about the participation in the second pillar will be distorted in a way which increases future fiscal liabilities. Making the system sustainable requires *a reform of the first pillar pension replacement rate, for example by adding a sustainability factor into the pension formula to ensure an automatic cut-back of replacement rates as the old-age dependency ratio worsens. Another way would be to increase the retirement age in line with gains in life expectancy and to index pensions solely to inflation rather than the current indexation to 50% nominal wage growth and 50% to inflation.* These measures would lower pension expenditures while guaranteeing that the number of years spent in retirement remained constant and protecting the consumption level at the age of retirement throughout the retirement period. Long-run sustainability of the pension system also requires raising the importance of the second (defined-contribution) pension pillar. Yet another way would be to raise contribution rates, although the labour tax wedge is already high. As a consequence of recent reforms which allowed participants to move back into the first pillar and made participation in the second pillar voluntary instead of mandatory for new labour market entrants, the inflow into the second pillar has slowed substantially and thereby raised the future spending liabilities of the currently non-sustainable first pillar. *Participation in the second pillar should be made the default option for new labour market entrants – participants would have to specifically opt out if they don't want to be in the system.*

In addition, the special allowance (“Christmas allowance”) paid once a year since 2006 to some groups of pensioners with incomes below a certain level should be phased out. However, the underlying issue is a concern about the lack of redistributive features in the pension system – which reflects a very strong link between earnings and subsequent pensions during retirement. Thus, the phasing out of the special allowance may need to be coupled with reforms to increase redistribution, for example by weakening this link or by subjecting pensions to personal income tax and using these revenues to raise first pillar pensions, as recommended in previous *Surveys*.

Revenues should be raised from real estate taxation...

In addition to expenditure cuts, revenue increases will need to be considered. Evidence from OECD countries suggests that taxes on immobile bases have less adverse effects on growth than labour or capital taxes. It is thus unfortunate that taxes on real estate – one of the least mobile bases – are scarcely developed in Slovakia with revenues amounting to ½ per cent of GDP, around a quarter of the average OECD country. Real estate taxation in

Slovakia consists of a land tax, based on applying a tax rate on the value of the land as set by regulation and a tax on buildings and apartments, based on applying a fixed tax rate per square metre.

Apart from yielding little revenue, the current taxation of real estate is below the level of taxes on investment in financial assets, thereby distorting the allocation of capital towards owner-occupied housing. Also, the set-up of the building and apartment tax, where the tax rate per square metre is fixed in euro terms, amplifies volatility of house prices as the effective tax rate is negatively correlated with the real estate value (*i.e.* the effective tax rate declines when the value of the property increases and *vice versa*). *The land tax rate should be raised, the building and apartment tax rate should be set as a per cent of the value, and in both cases the tax base should take the market value of the property into account.*

... and tax exemptions should be reduced

In addition, all tax expenditures should be regularly reviewed and certain exemptions should be phased out, not least because they are often a poorly targeted way of supporting low-income households. *In this regard, reduced VAT rates or exemptions – even though they are less widespread than in many other countries – should be reconsidered. In addition, tax exemptions in environmental taxation, which amount to revenue losses of around 0.2% of GDP, should be phased out.* When calculating the net revenue gain of such measures, however, it needs to be taken into account that some compensating transfers may have to be paid to low income households, thus reducing the net tax intake.

Improving fiscal discipline...

Evidence from OECD countries suggests that countries with fiscal rules have longer-lasting consolidations than others. Three laws govern public expenditures at the national level in Slovakia. The *General Government Budgetary Rules Act* sets out the rules for the preparation and implementation of the general government budget over the following three years. Its weakness is that revenue windfalls are usually not saved. The *State Budget Act*, which is concluded for each budget year, stipulates that windfall revenues may be used for additional spending up to 1% of originally budgeted expenditures. Local government entities are governed by the *Local Government Budgetary Rules Act* which is similar to a golden rule (as budgets excluding capital investment have to be balanced) and caps their debt level.

... by implementing a fiscal rule...

With a view to the major consolidation currently required, Slovakia needs to strengthen and reform its fiscal rules. In particular, *multi-year binding expenditure ceilings with a strong consideration of the cyclical position would improve the budgetary framework and should be implemented in a way to comply with the medium-term structural deficit objective of the Stability and Growth Pact. This may be combined with a debt rule, acting as an emergency backstop. The expenditure ceilings should include tax expenditures, but may exclude cyclical expenditure items such as unemployment benefits in order for the automatic stabilizers to work in both directions.*

... and setting up an independent fiscal council

The fiscal framework would be further strengthened by setting up an independent fiscal council as has happened in several OECD countries. Such an institution would help to depoliticize somewhat key aspects of fiscal policy (thus lowering a potential bias towards deficits or pro-cyclical behaviour). In addition, recent significant revisions of past deficits have highlighted the need to raise overall transparency. A fiscal council could provide recommendations for the purpose of budget formulation, including forming an opinion about the macroeconomic situation, and undertake analysis of fiscal issues, such as long-term sustainability, or simulate policy alternatives in order to inform the public (and politicians) about the consequences. Furthermore, a council should assess the compliance of budget numbers with the fiscal rules. By constructing a comprehensive and publicly available fiscal database, the council could significantly increase the transparency of public finances.

There is room for improving public sector efficiency

The significant deterioration of public finances means that Slovakia, like most OECD economies, now has very little scope for higher spending. In such a situation, policies to increase the efficiency of the public sector – both on the expenditure and the revenue side – can be particularly helpful. Such measures not only improve the fiscal situation (thereby freeing up resources for other purposes) but also help to stimulate productivity and thus potential. This in turn helps to improve the sustainability of public finances.

Tax administration could be improved

The collection of VAT receipts must be improved. Given that the standard VAT rate is around the European average and the level of tax exemptions is very low, Slovakia should be getting much more revenue out of its VAT system than it currently does. For example, raising the efficiency of collection towards the better performing OECD countries would raise three times as much additional revenue as a one percentage point increase in the standard VAT rate. *As fraud is likely to be an important reason for low VAT revenue collection efficiency the number of verification activities should be stepped up.* Further efficiency gains could be reaped by moving towards unified revenue collection as planned by the government's UNITAS project. Once the two phases of the project are implemented, the gains are estimated to amount to around 2½ per cent of GDP. *The plans for a unified collection scheme are highly welcome and should be implemented swiftly. In order to prevent delays, the government should proceed quickly with approving the second stage of the reform (UNITAS II).*

EU fund absorption could be increased

Improving the absorption of EU funds should also be a priority going forward, not least as this may help to cushion some of the adverse effects of the government budget cuts on the real economy. While Slovakia compares relatively well with other Central and Eastern European countries as regards the share of contracted grants to the total available budget, the amount of grants actually disbursed to the final beneficiaries (absorption) is much

lower. This outcome is partly due to a low quality and transparency of the selection process, meaning that some contracted projects do not pass the control mechanisms at the national level. *The underlying reasons for the low absorption should be investigated. Submission requirements for domestically funded capital projects should be transparent and simple and co-operation between ministries should be fostered in order to facilitate the certification process. Consideration should be given to accelerating the projects in order to get the maximum impact during the time of fiscal consolidation, thus damping the adverse growth effects of consolidation.*

Health care spending should be made more effective...

Public sector spending on health accounts for one-fifth of overall public expenditure in Slovakia and is expected to rise sharply over the next decades, not least due to rapid population ageing. At the same time, the system is less efficient than many other OECD countries in translating high expenditure growth into better health outcomes. Cross-country analysis suggests that life expectancy in Slovakia could be raised considerably if the system became more efficient. Alternatively, holding gains in health outcomes constant, a more efficient system could lead to significant savings. In addition, the inequality in health outcomes, measured as the standard deviation in mortality rates for the population older than 10, is higher in Slovakia than in a number of OECD countries. The Slovak health care system has undergone substantial reforms since 2005, and not all of the benefits may yet have occurred. However, policies still differ in many respects from countries with better performing health systems.

... by dealing with the high out-of-pocket payments and low incentives for general practitioners and hospital professionals,...

The increase in health spending is driven by private expenditures as out-of-pocket (OOP) spending has risen to very high levels. Anecdotal evidence suggests that these expenditures at least partly reflect informal payments. Rising OOP spending has led to increased inequality as low-income households are most affected by such extra expenditures, but this is not reflected in better health outcomes. *Given the extent of OOP payments in Slovakia, an upper limit for OOP payments in terms of annual household income as exists in many other OECD countries should be considered.* In addition, salaries of physicians are well below the OECD average, both in terms of USD PPPs and in relation to average wages, leading many of them to work abroad. *Thus, the remuneration structure of doctors should be reconsidered in order to ensure that supply constraints on the side of physicians do not prevent better health outcomes.*

... by reducing the excessive expenditures on pharmaceuticals,...

Expenditures on pharmaceuticals are very high in Slovakia, accounting for more than a quarter of all health spending – the second-highest in the OECD. In a catch-up country like Slovakia, pharmaceutical prices (a traded good) are often high in relation to the price of health expenditures as a whole (a non-traded good). However, there is also evidence of over-pricing. In addition, growth of drug volume consumption is also high, possibly reflecting

low co-payments for drugs. Consideration should be given to raising co-payments, even though this will tend to increase OOP spending. Measures to increase transparency in the pharmaceutical marketing and distribution and to reduce induced consumption of drugs should be introduced. Generic substitution should be encouraged; the government's plans to encourage doctors to only prescribe the drug substance is thus a step in the right direction. In addition, pharmacists should be obliged to always supply the cheapest generic drug. Benefit-cost ratios of newly entering as well as already marketed substances should be reviewed, using standard international methodology, and inferior products should no longer be reimbursed.

*... and by raising the scope for competition
in insurance and provider markets*

The organisation of the Slovak health insurance system is based on a multiple insurance system with competition, funded primarily by social security contributions. However, the market is highly concentrated, with only three funds providing primary health coverage – fewer than in the other OECD countries that offer consumer choice of insurers. In addition, the levers for competition on the market for the basic insurance package are much more limited than in countries with a similar institutional set-up, following a significant tightening of regulations over the past years. While the benefits of competition in health insurance markets are still highly debated – notably, it is not clear whether having a multi-payer system with competition is always preferable to a unitary payer system – Slovakia has opted for a system that favours competition, and thus reforms within that system are needed to make it more coherent with countries with more efficient health spending. To raise efficiency and cost containment, *competition among insurance funds should be increased by allowing the distribution of profits, reducing barriers to entry, such as reconsidering the upper limit for administrative costs, allowing selective contracting with providers, and allowing contributions to vary. Consideration should be given to splitting up and partial privatization of the dominant publicly-owned insurer.*

However, in order for healthy competition to take place, a number of conditions need to be ensured. This may include a refinement of the risk adjustment mechanism to provide a level playing field for health insurers by reducing the incentives for them to select lower-risk individuals. In the current mechanism, around 95% of all contributions are redistributed through a risk-equalisation scheme which takes into account a number of characteristics, such as age, gender and income. *The risk-equalisation formula should be improved by also including health parameters.* In addition, competition among providers, which currently is very low in some segments, such as hospitals, should be increased. A first step in this direction has been the collection of quality indicators for healthcare providers. The aim is to increase transparency, thus allowing insurance funds to better choose providers and allowing patients – who have the free choice among providers – to choose doctors and hospitals. The list of quality indicators for healthcare providers should be further improved to reflect genuine differentiation in quality and should be published regularly in full detail. While such quality measurement is a critical ingredient for a functioning competitive market, insurance companies need to be allowed to more selectively contract with providers in order to fully bear the fruits. Currently, the extensive minimum network of providers limits such choice and *redefinition of this network should be considered, perhaps by defining the minimum network using quality indicators. Moreover, the benefits and risks of a transformation of hospitals into joint stock companies should be explored further.*

Fostering transition to a greener economy through eco-innovation...

The transition to a greener economy is challenging for a country like Slovakia, which is characterized by a relatively high share of energy-intensive industries compared to the OECD average and an important automotive sector. Fostering eco-innovation – the implementation of innovative products, processes, marketing methods, organisational structures and institutional arrangements which lead to environmental improvements – may thus be helpful to lower the abatement cost of pollution and ease this transition. Doing so will require structural reforms in several areas, such as improving the innovation framework, fostering human capital formation and enhancing the business environment.

... and addressing climate change by better pricing pollution...

Although Slovakia achieved one of the largest declines in greenhouse gas (GHG) emissions among OECD countries since the 1990s, the level of GHG emissions still remains very high reflecting high energy intensity. In addition, air pollution is expected to rise in the coming years in the absence of efficient policy actions. To tackle this issue, *environmental taxation should be extended, in particular by establishing a clear, predictable and credible carbon tax in the sectors not covered by the European Union Greenhouse Gas Emission Trading System (EU-ETS)*. Putting a national price on GHG abatement through such a tax would limit the cost of mitigation efforts, remove distortions across sectors and provide fiscal resources to replace more distortive taxes. A rapid and significant reduction of energy intensity would also help in reducing GHG emissions and contribute to creating sustainable conditions for growth. In addition, it would reduce dependence on imported fossil fuels, and limit the vulnerability of the economy to energy-price shocks and to shortfalls in primary resources. *To foster energy savings, exemptions on energy taxes should be removed. In particular, remaining exemptions for household energy consumption should be phased out, but financial compensation targeted on low income households should also be instituted so as to limit negative social repercussions.*

The development and implementation of environmental and energy policies are not centralized and lack co-ordination. *Better co-ordinating efforts among the different administrative bodies is thus needed. Carrying out systematic evaluations, including the construction of marginal abatement cost curves, would improve the cost effectiveness of environmental and energy policies.* In particular, *measures to develop renewable energy sources (RES) should be carefully monitored to avoid deadweight losses and abusive exploitation.* Those subsidies, which could be replaced by more efficient and less costly market-based instruments, should be phased out. For instance, *tax exemptions on electricity produced from renewables should be removed and subsidies for equipments used to exploit renewable energy sources should be replaced by soft loans or at least this state aid should be targeted on credit-constrained households.*

... encouraging more R&D spending...

R&D activities are relatively underdeveloped in Slovakia with total gross expenditures on R&D the second lowest in the OECD. A coherent national innovation plan is still lacking and effectiveness of public R&D spending in increasing private R&D performance is low. The

current financial support of private R&D, which relies mostly on direct subsidies, should be redesigned, for example by widening the scope of tax expenditures. The rules for granting R&D and innovation support should be clarified and projects should only be excluded on eligibility grounds. Protection of intellectual property rights is important for firms to get the full returns on their investment in innovation, and thus should be strengthened.

... ensuring a business-friendly environment...

Improving the business environment would enhance competition, improve access to capital and increase the availability of a flexible and skilled labour force. Encouraging competition can raise firms' incentives to innovate and improves their cost-efficiency. Reducing entry barriers in product markets eases the entry of new firms which tend to be more innovative. Even if Slovakia has made some notable progress, the start-up of new businesses is still more complicated, costly and time-consuming than in many other OECD countries. *The administrative burden should be reduced, for example by establishing the long-envisioned single contact point for firms and by unifying the collection of social security contributions and taxes. Entry barriers should be removed in regulated sectors, notably in energy.* Despite the recent opening of the energy market, the incumbent companies are still dominant. This lack of competition could hamper eco-innovation by reducing incentives for energy producers, distributors and suppliers to find solutions to improve energy efficiency. *Competition in the energy market should be ensured by limiting non-price discrimination and the power of incumbent companies, for instance by establishing unambiguous and transparent rules for access to the grid, the enforcement of contracts and the authorisation procedures. The price-setting framework should also be more stable and transparent.*

Lack of funds is one of the main factors hampering innovation and venture capital is underdeveloped in Slovakia. Recent initiatives to develop financing of small innovative firms (JEREMIE) should thus be pursued further. Adapting to a greener economy requires structural change and the diffusion of new technologies, which may lead to skill shortages. *Fostering the expansion of a private rental market and ensuring that job protection legislation is not excessive would improve the adaptive capacity of the labour market. Skill availability should be ensured by the development of training and life-long learning and the removal of barriers to mobility.*

... and developing a knowledge society

To raise its innovative and adaptive capacities, Slovakia needs to develop a knowledge society by increasing the quality of tertiary education, removing barriers to knowledge transfers and obstacles to human capital accumulation. Tertiary educational attainment is an important determinant of innovative capacity, as it broadens the potential for creation and diffusion of knowledge. Slovakia has a low level of tertiary educational attainment, even for the young generation, and outcomes are weak. *Reforms are required to increase the quality and the flexibility of the tertiary education system. In turn, allowing universities to introduce tuition fees for full-time students coupled with loans having income contingent repayments, facilitating entry of new competitors into the tertiary education system, and replacing budgetary allocations to universities with competitive research grants (or at least making funding more dependent on outcomes) would help achieve these objectives.* In addition, Slovakia has scope to develop knowledge transfers and improve technological diffusion: ties between the academic and the business sphere are weak, participation in international R&D projects is

limited, and ICT use is underdeveloped. *Barriers to labour flows (as between the academic and the business sphere) at the national and the international level should be removed. In particular, high-skilled migration should be facilitated. Public support to innovation should encourage the establishment of knowledge networks, cross-funding of projects and international co-operation.*

*A political economy reasoning for consensus
about important regime changes*

In the past years Slovakia was exposed to several regime changes in important policy areas, such as pensions, health care and the labour market. While each of these changes has had its own merits and risks, the mere frequency and significance of policy shifts risks taking up scarce resources in policy making and imposing additional adjustment costs on society. It is therefore a welcome step by the current government to seek a broad consensus to support reform initiatives concerning the fiscal policy framework. Notwithstanding different political preferences, there is room for agreements which concern measures influencing the more medium or long term performance of the economy with the potential for a high return to stability in the policy environment.

Chapter 1

Emerging from the crisis

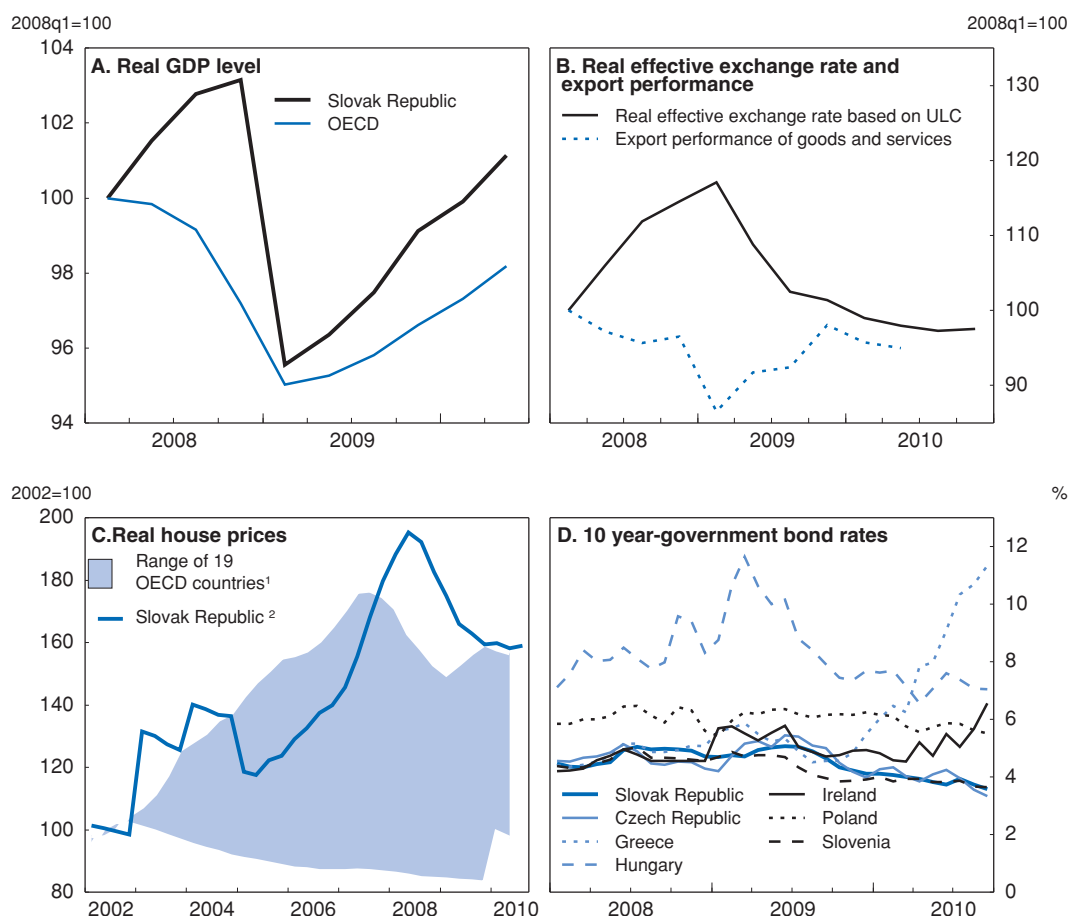
After falling significantly during the crisis, real GDP growth is recovering swiftly, helped by a pick-up in demand in Slovakia's main trading partners. Unemployment rose substantially during 2009 and in early 2010 and the overall crisis-induced increase is now higher than on average in the OECD. The main challenge is to prevent a further build-up of long-term unemployment, which was already very high before the crisis. This will require reviewing the existing labour market programmes and ensuring wage flexibility by reforming minimum wage regulations and legal extension of wage contracts. The budget deficit has risen to around 8% of GDP, and the government is planning a major consolidation effort. The focus should be on containing government spending, including by implementing important reforms to the first pillar of the pension system. Phasing out tax exemptions and raising taxation of immobile bases should also be considered. In addition, fiscal institutions should be strengthened.

The crisis has hit hard

The Slovak economy experienced a deep recession which led to a fall in real GDP of 4.7% in 2009. This was primarily due to the tight trade links with western European countries, notably Germany, which exposed Slovakia to the sharp fall in world trade. In addition, demand was particularly weak for the goods in which Slovakia specialises, namely cars and consumer electronics. By contrast, the domestic fundamentals of the economy were comparatively solid. Even though household debt had risen significantly in the years before the crisis it was not excessive compared with developments in some other countries with similar levels of development (OECD, 2009a). House prices increased strongly up to 2008 and fell thereafter (Figure 1.1, Panel C). A large part of the rise was due to the decrease in interest rates ahead of euro area entry and the increase in *per capita* incomes (OECD, 2009a), suggesting that there were fewer signs of pronounced overheating than in some other OECD countries. The financial sector also weathered the crisis better than in many other countries, not least due to a high ratio of deposits to loans (which lowered refinancing risk), limited exposure to toxic assets or sovereign risk and an almost complete absence of foreign-denominated housing loans. Being part of the monetary union also helped the country during the crisis, not least by increasing market confidence. For example, government bond yields remained below those of similar countries (Figure 1.1, Panel D). The currencies of neighbouring countries outside the euro area depreciated during the crisis, thereby contributing to the significant appreciation of Slovakia's real effective exchange rate during 2008 (Figure 1.1, Panel B). However, this development had only a limited adverse effect on Slovakia's export performance, in part because firms laid off a significant number of workers during the crisis to preserve competitiveness.


These factors may help to explain why output has been recovering swiftly since the second quarter of 2009 on the back of an improvement in world trade. On current trends, the pre-crisis level of real GDP may be reached again during 2011, faster than in many other OECD economies (Figure 1.1, Panel A). Nevertheless, the adverse effects of the crisis – notably the substantial increases in unemployment and in the fiscal deficit – will be felt for some time and remain major policy challenges. In addition, the crisis has likely led to a reduction in the level of potential GDP through higher capital costs and an increase in structural unemployment, although considerable uncertainty remains about the size of the effect. Deep crises present opportunities to implement structural reforms and the newly elected government has rightly embarked on an ambitious reform agenda (Box 1.1). The objective should be to both achieve a lasting fiscal consolidation and bring the country back towards solid trend growth.

Figure 1.1. Key macroeconomic indicators



1. Includes Australia, Belgium, Canada, Denmark, Finland, France, Germany (up to 2009Q4), Ireland, Italy (up to 2010Q1), Japan (up to 2010Q1), Korea, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom and the United States.
2. Slovakia: Annual house prices from 2002 to 2004, converted by taking the annual average in every quarter.

Source: OECD, OECD Economic Outlook Database and National Bank of Slovakia.

StatLink  <http://dx.doi.org/10.1787/888932358314>

The economy is recovering quickly...

The growth recovery is set to slow in 2011, partly because growth in Slovakia's main trading partners is expected to be more moderate and the government's plan to cut the fiscal deficit substantially will weigh on domestic demand. In particular, cuts in public expenditures and the increase in the VAT rate will weaken consumer spending. However, growth is expected to be strong enough to gradually reduce unemployment from very high levels through 2011 and 2012. The reduction in spare capacity will induce further investment spending, which will also benefit from accommodative financial conditions. Overall, real GDP is projected to grow at about 4% in 2010. Growth is then expected to slightly decline in 2011 and accelerate again in 2012 to around 4½ per cent (Table 1.1). The main risks are posed by uncertainty about growth of the main trading partners and the adverse demand effects from fiscal consolidation.

Box 1.1. The new government has an ambitious reform agenda

The manifesto of the new government issued in July 2010 places much weight on consolidating public finances (while maintaining the quality of services), fostering employment and enhancing the long-term growth potential of the economy, not least by supporting the development of a knowledge society. The main plans are as follows:

Public finances

- Lowering the budget deficit to below 3% of GDP by 2013. On the expenditure side, this involves spending caps and improving public sector efficiency. On the revenue side, it is planned to temporarily increase the VAT rate from 19% to 20% combined with a reduction of tax exemptions, to curb tax evasion, particularly in the area of VAT, and to consolidate the collection of taxes and social charges.
- Reforming the indexation of pensions, introducing a minimum pension and relaxing the regulation of pension funds.
- Adopting new fiscal rules and setting up an independent institution for monitoring public finances (a fiscal council).
- Reviewing the experience and results of public-private partnership (PPP) projects already implemented before implementing further PPP projects in transport infrastructure.

Business environment

- Improving the business environment, for example by reducing the administrative and regulatory burden for companies and easing the setting up of new companies, not least through improving the availability of venture capital. Privatizations of strategic companies are not planned but more efficient operation is envisaged.
- Fostering innovation by promoting co-operation between research institutions and enterprises and monitoring the effectiveness of the existing public funds spent on R&D.

Labour market, education and health

- Introducing a work/benefit programme for the long-term unemployed and incentives for employers to create new jobs (such as lower social contributions).
- Adjusting the labour code to lower the level of employment protection (through changes in the notice period and in severance pay); making legal extension of wage contracts dependent on the employer's consent.
- In education and research, increasing financial resources relying more on outcome indicators. Primary and secondary schools will have more autonomy in the *curriculum* definition and mandatory evaluation of their outcomes will be established. International quality standards will be introduced in the accreditation process of universities, while independence of the Accreditation Commission will be strengthened. Financial incentives will be provided to research activities on a competitive basis and collaboration with the private sector and international exchanges will be fostered.
- In healthcare, introducing quality measurement of providers. Measures to counter excessive pharmaceutical consumption will be taken (such as prescription of active substances instead of a certain product). The gatekeeping obligation will be abolished and an upper cap for out-of-pocket payments per household will be introduced. All hospitals will be turned into private companies and the regulation of health insurance funds will be mainstreamed.

Energy policy

- Diversifying energy sources, with an emphasis on improving the connection of the electricity, gas and oil pipeline systems with neighbouring countries and strengthening energy security in the region. Dependence on imported fossil fuels will be reduced, not least through the development of biomass.
- Enhancing competition in energy markets.

Housing policy

- Developing social rental housing and making the planning process more efficient.

Table 1.1. **The short-term outlook**

	2008	2009	2010	2011	2012
	Percentage changes, volume (2000 prices)				
Real GDP	6.2	-4.7	4.1	3.5	4.4
Private consumption	6.0	-0.7	-0.1	0.4	3.3
Government consumption	5.3	2.8	1.6	-3.7	1.0
Gross fixed capital formation	1.8	-10.5	-0.7	6.1	6.9
Final domestic demand	4.8	-2.5	0.1	0.9	3.7
Stockbuilding ¹	1.3	-3.4	2.4	0.5	0.0
Total domestic demand	6.0	-5.8	2.6	1.3	3.7
Exports of goods and services	3.2	-16.5	14.1	9.9	6.9
Imports of goods and services	3.1	-17.6	11.6	7.0	6.1
Net exports ¹	0.1	1.3	1.7	2.4	0.8
GDP deflator	2.9	-1.2	0.1	2.2	2.3
<i>Memorandum items</i>					
Consumer price inflation	3.9	0.9	0.8	3.4	2.9
Core inflation	2.8	1.8	0.6	3.4	2.9
Private consumption deflator	4.5	1.0	0.4	3.3	2.9
Unemployment rate	9.5	12.1	14.1	13.4	12.5
General government financial balance ²	-2.1	-7.9	-8.0	-5.2	-4.0
General government debt ²	27.7	35.3	42.6	46.6	48.8
Current account balance ²	-6.5	-3.2	-3.1	-0.9	-0.3

1. Contributions to changes in real GDP (percentage of real GDP in previous year).

2. As a percentage of GDP.

3. 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).

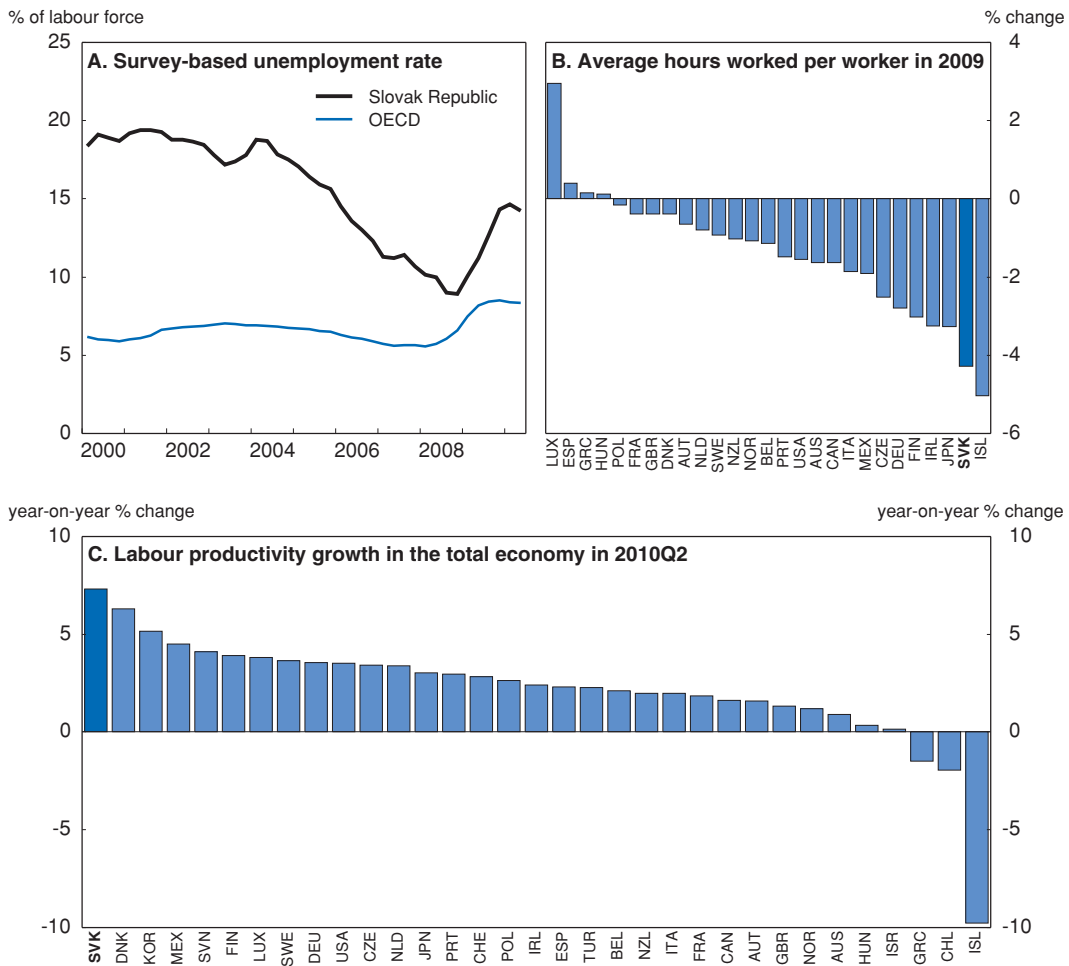
Source: OECD, OECD Economic Outlook 88 Database.

Dealing with the labour market crisis


Unemployment has increased sharply

The labour market in Slovakia has been severely hit by the crisis, with the unemployment rate increasing by more than 5 percentage points since its trough at the end of 2008, to over 14%. This increase is almost twice as high as the OECD average, partly mirroring the larger output loss (Figure 1.2, Panel A).¹ In addition, hours worked also fell significantly during 2009 (Figure 1.2, Panel B). The reduction of working hours was helped by working-time adjustment arrangements, such as allowing the use of working time accounts and a short-time work scheme whereby the labour office reimburses employer and employee social contributions for hours not worked (up to a monthly maximum of EUR 339 and for a maximum of 60 days per year (Ministry of Finance of the Slovak Republic, 2009)). The large adjustments in both employment and hours have led to a sizable gain in labour productivity (Figure 1.2, Panel C).

Job losses in industry (primarily manufacturing) have accounted for around two-thirds of the decline in employment since end-2008. By contrast, fewer jobs were shed in construction and in the services sector and employment increased in public administration. The development of employment across workforce groups mirrors the experience in other OECD economies. Youth were the worst affected, with their employment level falling by 15% in 2009, while employment of older workers increased. Job losses were also focussed on workers with low- and medium education levels. In contrast to other OECD countries, the number of self-employed workers continued to rise

Figure 1.2. **Unemployment rose sharply during the crisis**

Source: OECD, OECD Economic Outlook Database and Labour Force Statistics Database.

StatLink  <http://dx.doi.org/10.1787/888932358333>

during the recession. In particular, the number of those self-employed who do not engage any employees (so-called own-account workers) increased significantly. Both structural and cyclical factors are likely to be behind the increasing role of self-employment (see Box 1.2).

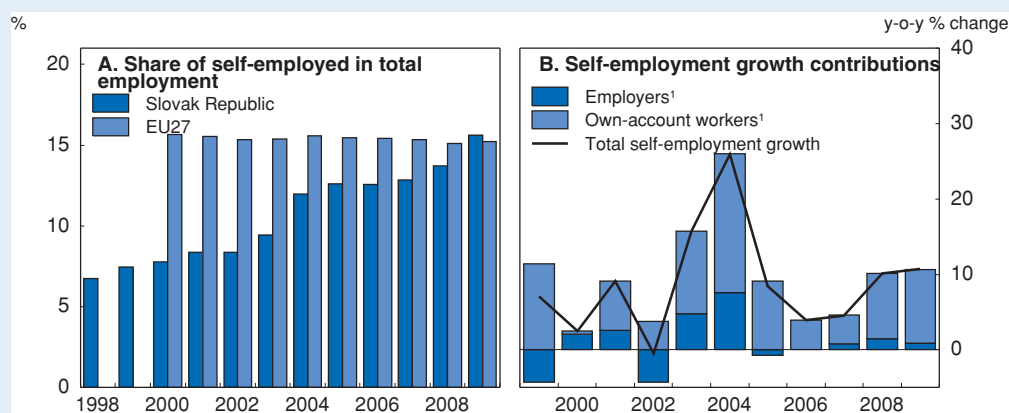
Long-term unemployment is likely to rise further

The main challenge going forward is to avoid long spells of unemployment, which would degrade skills and human capital. Prior to the crisis, long-term unemployment was already a major problem in Slovakia, with a share of long-term unemployed in total unemployment of close to 70%, the highest in the OECD. This reflects a number of structural factors that have been identified in past Surveys (OECD, 2007a, 2009a; Table 1.A1). For example, labour mobility is very low owing to the near-absence of a rental housing market as well as the current set-up of housing allowances which focus only on recipients of social assistance. In addition, outcomes of the education system are below the

Box 1.2. The rise of self-employment in Slovakia

The role of self-employment in the Slovak labour market increased rapidly in the last decade, with its share in total employment doubling to almost 14% from 1998 to 2008.¹ It is now in line with the EU27 average (Figure 1.3, Panel A). This trend intensified during the recession, with the share of self-employment in total employment jumping by almost 2 percentage points between 2007 and 2009. Self-employment is particularly high in construction, accounting for almost half of total employment in that sector, against the EU27 average of 25%.

Figure 1.3. Self-employment over time and by type



1. Employers are self-employed with employees while own-account workers operate their enterprise without support of dependent employees.

Source: Eurostat.

StatLink  <http://dx.doi.org/10.1787/888932358352>

Although there is no unique set of variables explaining the rise of self-employment, a number of factors increase its attractiveness compared to dependent employment (OECD, 2008). First, tax and social contributions are lower when compared to dependent workers. Employee social security contributions are around 13½ per cent of gross wage earnings – roughly 3 percentage points higher than in the average OECD country.² By contrast, special provisions apply for self-employed and the majority of them pay contributions only on the minimum assessment base, thus significantly lowering their contribution burden (in addition, social contribution rates for the self-employed were reduced temporarily during the crisis). Second, stricter employment protection of permanent job contracts may induce employers to hire workers informally (i.e. as false self-employed, working only for one company) in order to avoid severance costs and increase flexibility (OECD, 2008). Third, the relatively weak social safety net in Slovakia (the average net replacement rates over 60 months of unemployment is much lower than in the average OECD country) may be a further explanatory factor (Parker and Robson, 2004). Self-employment rose sharply in 2004 when social benefit generosity was reduced. Fourth, start-up subsidies provided by the labour office increase the financial attractiveness of self-employment, at least in the first years. In Slovakia, such subsidies were introduced in 2004 and are granted to qualifying job seekers provided that they continue performing self-employed activities for at least two years. In response to the crisis, the conditions for receiving the subsidies were temporarily changed and until the end of 2011 school graduates can apply for the subsidy immediately upon registering at the labour office. The share of start-up incentives in total ALMP expenditure has risen sharply and stands significantly above the EU average. The conditionality of the subsidy was further relaxed during the crisis by reducing the length of unemployment period for applicants to be qualified, potentially explaining the strong increase in self-employment during the crisis. The number of supported new self-employed persons reached more than 12 000 in 2009 (around 3.3% of total self-employed during that year), up from 5 500 in 2004.

Box 1.2. The rise of self-employment in Slovakia (cont.)

Anecdotal evidence suggests that self-employment is at least to some extent used as a way to circumvent taxes or regulations. For example, a large share of the increase in self-employment is accounted for by own-account workers, i.e. self-employed without employees (Figure 1.3, Panel B). They made up 83% of new self-employed on average between 2000 and 2009 and as a consequence their share of total self-employment increased strongly, reaching 77% in 2009, significantly above the EU average of 57%. In addition, the main inflow into self-employment is persons who were previously employed; those previously unemployed or inactive account for a much smaller share.

1. Self-employed include entrepreneurs with employees (employers), entrepreneurs without employees (own-account workers) and unpaid working household members, with the last being a very small workgroup in Slovakia (OECD, 2000).
2. The level of contributions differs only slightly across wage levels and family types (OECD, 2009c).

OECD average, depend significantly on the socio-economic background and are particularly poor for the Roma population. Also, social security contributions are very high in OECD comparison, raising non-wage labour costs. It remains important to deal with these structural factors going forward to lower the share of long-term unemployed, but also to ensure that the labour market is flexible enough to deal with future structural change in the economy (Chapter 3).

The following sections focus instead on the challenge of a further rise in structural unemployment due to cyclical factors. This is because the pass-through from an increase in the unemployment rate to long term unemployment over a two year period is estimated to be slightly above one half in Slovakia, the fourth highest in the OECD (Guichard and Rusticelli, 2010).² Taking the recent rise in unemployment into account, the long-term unemployment rate could therefore rise to over 8½ per cent by 2011, thereby partly reversing its decline from over 11% in 2002 to 6% in 2008. As a consequence of hysteresis effects, the structural unemployment rate (NAIRU) – and thus potential growth – would also be adversely affected, with the pass-through from long-term unemployment into the structural rate estimated to be around two-thirds. In addition, there may be further adverse effects of the crisis on the labour force as job seekers experience difficulties finding a new job may become discouraged, cease to actively search for employment and exit the labour market. These discouraged workers may not return to the labour market even after the economy starts to recover, decreasing labour force participation and the available labour supply and eventually leading to social exclusion (OECD, 2010a).

Active labour market policies need to be adapted

The policy response during the crisis in Slovakia so far has focussed mainly on labour demand (OECD, 2009d). As in several other countries, a short-time work scheme was implemented, even though participation (0.85% of total employees) was relatively low (the OECD average was 1.4%). In March 2010, the scheme was extended to run until the end of 2011. Non-wage labour costs were temporarily reduced for the self-employed by cutting contributions to the solidarity reserve fund from 4.75% to 2% for up to 21 months.³ Subsidies for employers who hire unemployed in jobs lasting for at least 12 months were introduced, amounting to up to half the labour costs (up to a cap) for a period of one year. Furthermore, creation of new jobs in so-called social enterprises (enterprises that are obliged to employ at least 30% disadvantaged jobseekers among the total number of staff

and to re-invest profits into their education, but receive public grants in return) was made easier. The measures included a temporary loosening of the key requirements for granting a firm the status of social enterprise. By contrast, fewer efforts have been made in implementing labour supply measures. They include a contribution to the wage of jobseekers who find new employment with a gross wage below EUR 314.82 a month (around 42% of the monthly average wage or 1.7 times the minimum subsistence level), paid in the first year of employment. In addition, the in-work tax credit (employee bonus) was made significantly more attractive.⁴ To foster self-employment, counselling and preliminary assessments of business plans for entrepreneurs interested in starting a new business were increased. Finally, the commuting allowance was increased to a total maximum monthly level of EUR 135 to promote regional mobility.

The measures so far are welcome and may have to be maintained as long as the risk of rising unemployment has not vanished. However, more needs to be done on the labour supply side to prevent the unemployed from becoming detached from the labour market. Overall expenditure on active labour market programmes (ALMP) is lower than in the OECD, amounting to 0.25% of GDP in Slovakia compared to 0.57% in the OECD in 2008.⁵ The additional spending on active labour market programmes in response to the crisis was only about half as much as in the average OECD country (OECD, 2010b).

Table 1.2. Composition of spending on active labour market programmes
% of total expenditures on active labour market programmes, 2008

	Slovakia	OECD
PES and administration	44	28
Training	4	25
Employment incentives	8	16
Supported employment and rehabilitation	8	16
Direct job creation	20	11
Start-up incentives	20	4

Source: OECD, *Labour Market Programme Database*.

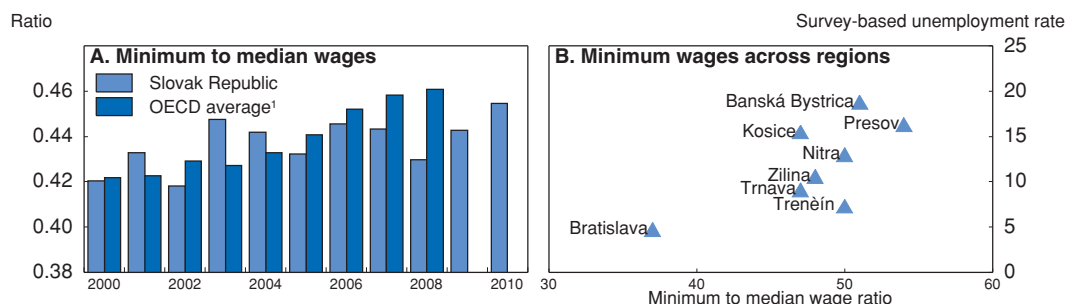
There are marked differences in the composition of active labour market programmes between Slovakia and the OECD (Table 1.2). The relatively larger share of expenditures that is spent on public employment services (PES) is a positive feature as such spending is usually seen as highly effective. While re-employment possibilities are scarcer as available vacancies decline during a recession, contact with PES and activation programmes help retain labour market attachment and can damp the hysteresis effect (OECD, 2010b). The extent to which the recent large increase in the number of unemployed has weakened the capacity of PES to provide adequate case management and re-employment services for job seekers should be closely monitored. Also, PES capacity should be maintained, even as public budgets are consolidated, to help deal with the increased number of unemployed. Slovakia spends very little on training, notwithstanding an increase during the crisis, and the possibility of using this avenue more should be considered.⁶ While the effectiveness of training programmes in normal times is highly variable, partly because they entail opportunity costs (the time used for training cannot be used to search for a job), the cost-benefit balance may be more favourable during recessions when job vacancies are fewer and unemployment durations longer (Lechner and Wunsch, 2009). By contrast, evidence on the effectiveness of start-up incentives – on which Slovakia spends relatively more

than the OECD average – is more mixed: while Dar *et al.* (1999) argue that self-employment schemes have large deadweight costs and high rate of business failures, evidence on similar schemes in Germany and New Zealand tends to be more supportive (Wolff and Nivorozhkin, 2008; Perry, 2006). Thus, Slovakia should closely monitor the effectiveness of its start-up incentives and, based on the results, may consider reducing their scope. The design of less effective ALMPs should be revised to improve expenditure efficiency and impact on employment. The number of active programmes has almost tripled (from 10 to 28) since 2006 but a significant number of programmes has very few or no participants. A mechanism for regular cost-efficiency evaluations of existing ALMPs is lacking and should be implemented.

... and wage formation needs to be kept flexible

Flexible wage formation mechanisms are essential to restore labour market equilibrium following the rise in unemployment. In this regard, institutions that could prevent adjustment of wages to local conditions should be reviewed. In particular, it needs to be ensured that a too high minimum wage does not have adverse effects on employment. The minimum wage level relative to the median wage for the country as a whole remains around the OECD average; in 2008, the ratio in Slovakia was 43% compared to 46% for the OECD. Since then, it is estimated to have risen to 45% in 2010 (no 2010 numbers are yet available for the OECD average) (Figure 1.4, Panel A).⁷ More importantly, however, due to the divergent wage levels across the country, the ratio of the minimum wage relative to the median wage is much higher in certain parts of the country. Regions with an above-average relative minimum wage level tend to have an above-average unemployment rate (Figure 1.4, Panel B). For example, in the Prešov region (where unemployment is among the highest), the ratio amounts to 55%, while in Bratislava (where unemployment is the lowest), it is only 38%.⁸ This relationship is supported by empirical evidence at the district level: IMF (2010) finds that a higher minimum-to-average wage ratio in one district relative to Bratislava is significantly related to a relatively higher unemployment rate.


Figure 1.4. Minimum wages over time and by region



Note: The ratio of minimum wage to median wage in Panel A is taken from the OECD *Labour Force Survey Database* and is based on average wages for full-time workers. Data for Panel B is taken from the Statistical Office of the Slovak Republic and the ratios are based on average earnings including part-time workers as the average wages for full-time workers only is not available on a regional basis. This introduces an upward bias relative to the data in Panel A. 2009 and 2010 median wage data are calculated by applying the expected growth of average wages.

1. Arithmetic average excluding Austria, Chile, Denmark, Finland, Germany, Iceland, Israel, Italy, Norway, Sweden and Switzerland.

Source: OECD, *Labour Force Statistics Database*, Statistical Office of the Slovak Republic *Regional Database* and Central Office of Labour, Social Affairs and Family.

StatLink  <http://dx.doi.org/10.1787/888932358371>

Significant increases in the minimum wage should be avoided. In addition, some differentiation of the minimum wage to deal with pockets of high unemployment should be considered. While decisions about the minimum wage are meant to be agreed by the social partners under current law, the government takes the decision whenever the social partners do not reach an agreement (based on the average wage increase of the previous year). This was the case in 2009, when the government decided that the 2010 minimum wage would rise by 4.1%, rather than the 8.1% (equal to the rise in average wages in 2008) that the indexation mechanism would have required. This decision is welcome but the government should resist compensating this lower increase for 2010 with higher increases in later years. For 2011, the minimum wage is set to increase by 3.1%, a decision also taken by the government. Advice from an independent expert commission on the minimum wage in the future might be used, as in several other OECD countries. For example, in the UK the Low Pay Commission advises the government on decisions about the minimum wage. Its members have different backgrounds, ranging from employers and employee organisations to academics (serving in their individual capacity and not representing their respective organisations).

The setting of a national minimum wage also has implications beyond low-income earners. A regulation stipulates that employees in firms not covered by collective wage agreements are subject to a minimum wage that differs by employee, depending on the type of work. To this end, jobs are divided into six levels of difficulty ranging from auxiliary or preparatory work according to precise instructions to specialized activities, such as research and development. While the minimum wage level for the lowest level of difficulty is equal to the national minimum wage, it rises to twice the national minimum wage for work classified as the highest level. Hence, even if the national minimum wage relative to the median wage may be around the OECD average, its consequences in practice may be far more important as it is affecting a much wider range of employees than just those earning a low income (no statistics are available on how many employees are affected by this regulation). Nevertheless, an effective wage floor above the national minimum wage level may be a major hindrance to local wage adjustment and should therefore be phased out.

Legal extension of collective wage contracts to firms that do not participate in collective bargaining may also hinder wage adjustments to regional requirements or to firm-specific situations. Until 2007, Slovak firms had the right to veto the extension to their firm, but this was changed subsequently, leaving Slovak firms only very limited ground to ask for exoneration (OECD, 2009a).⁹ Nevertheless, in practice legal extension by the government was not used frequently: in 2009, five collective agreements were extended (but not to all employers in the sector) and in 2010, two requests for extension were submitted. The new government recently changed the law and now legal extension of collective wage agreements is dependent on the consent of affected firms. While this is a welcome step, ending legal extension might be the best policy.

Bringing public finances back on a sustainable path

The budget deficit has increased sharply

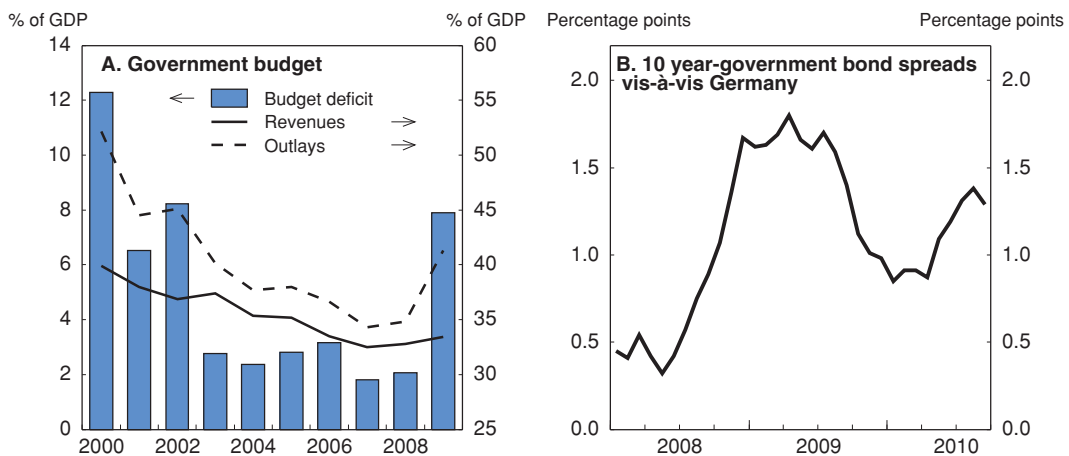
The fiscal deficit has increased sharply during the crisis from 1.9% of GDP in 2007 to 7.9% of GDP in 2009 and is estimated to remain broadly at this level in 2010 (Figure 1.5, Panel A). On the one hand, this reflects the working of automatic stabilisers. For example,

spending on social security benefits increased by 2% of GDP during 2009 and corporate tax receipts fell sharply. Since the crisis is likely to have led to a permanent loss of potential output, the deterioration in the headline deficit due to cyclical reasons is smaller than otherwise, *i.e.* the structural deficit is higher (Furceri and Mourougane, 2009). On the other hand, discretionary spending increased as the government implemented several fiscal stimulus programmes, amounting to around 1% of GDP (1½ per cent including EU funds) spread over 2009 and 2010 (Box 1.3).


Bringing down the fiscal deficit should be the main priority going forward. Government bond markets are increasingly distinguishing between sovereign debtors, and thus the risk of rising interest rates becomes larger the higher the debt level rises. Indeed, spreads of Slovak government bonds *vis-à-vis* Germany have increased significantly since 2008, although part of this rise may reflect an increased premium for the lower liquidity of Slovak bonds as investors focussed on the more liquid German benchmark bonds during the crisis (Figure 1.5, Panel B). While the debt level at around 40% of GDP in 2010 is still one of the lowest in the OECD, it has risen by more than 10 percentage points since 2008. As ownership of Slovak government bonds is becoming increasingly more international with euro area entry, the exposure of the Slovak government bond market to foreign investor sentiment may raise. In addition, the effects of ageing will soon put additional pressure on public finances. Age-related government expenditures are projected to increase by 5.2 percentage points of GDP by 2060 (with higher spending on pension, healthcare and long-term care being offset to some extent by lower expenditures on unemployment benefits and education), somewhat more than the EU27 average of 4.7 percentage points (European Commission, 2009a).

Against this background, the Slovak government has rightly announced plans for a substantial consolidation package that is intended to reduce the deficit in 2011 by 2.5 percentage points of GDP (compared to a no-policy change scenario). Around 60% of the consolidation is expected to come through expenditure cuts. These include substantial cuts in government consumption, notably a 10%-cut in the public wage bill (as some groups

Figure 1.5. **Government finances and sovereign debt spreads**



Source: OECD, OECD Economic Outlook Database.

StatLink  <http://dx.doi.org/10.1787/888932358390>

Box 1.3. The government's fiscal stimulus packages

In the period from November 2008 to February 2009 three packages of anti-crisis measures were adopted, followed by some additional measures with minor fiscal impacts. While some of the measures aimed to stimulate aggregate demand in the short run and were concentrated mainly in 2009 and 2010, others were permanent with a view to creating conditions for economic growth after the crisis.

Temporary measures included:

- Changes in the personal income tax to temporarily increase the basic tax allowance (in addition to the annual statutory increase) and the employee tax credit during the tax periods of 2009 and 2010.
- Lower social contributions for the self-employed by 2.75 percentage points.
- Several financial support schemes for creating new jobs, maintaining employment, support of creation of social enterprises and possibility to use flexible work time at firms.
- Support for small and medium-sized enterprises (SMEs) via financing specific projects and programmes (incubator care programme, consultancy and education support scheme) and easier access to credit.
- Projects focused on increasing energy efficiency, including interest-free loans for thermal insulation of apartments and family houses, and improving Slovakia's energy infrastructure.
- A car scrapping scheme aimed at raising demand for automobiles and accelerating the exchange of old models for new ones with lower fuel consumption and a smaller environmental impact.

Permanent measures include:

- Shortening the period for refunding value added tax (VAT) deductions exceeding taxpayers' VAT liabilities from 60 to 30 days, leading to a one-off increase in liquidity of taxpayers who met the criteria for eligibility, such as zero tax, customs and compulsory social insurance arrears in the previous 12 months.
- Stimuli for research and development carried out by businesses, provided in the form of state budget subsidies and income tax relief.
- Reduction in the administrative burden on businesses, for example allowing the VAT deduction in a later tax period, group registration for VAT payers and simplified tax record keeping for small businesses.
- Depreciation of selected assets was made more favourable,
- Acceleration of public infrastructure investments mainly via implementation of PPP projects in road construction.

The measures were financed from several sources: an increase in the budget deficit, EU funds and other sources such as loans from the European Investment Bank with the total amount adding up to 0.9% of GDP in 2009 and 0.8% of GDP in 2010. The impact of the measures on the general government balance amounted to 0.4% of GDP in 2009 and 0.6% of GDP in 2010 which will fall to 0.1% of GDP in 2011 provided that the temporary measures are phased out as planned (Table 1.3). EU funds contributed another 0.2% of GDP in each 2009 and 2010. In cash terms, the impact on the government budget amounted to 1.8% of GDP in 2009 and 0.6% of GDP in 2010.

Table 1.3. Overview of anti-crisis measures

% of GDP

	2009				2010			
	Impact on government budget	Contribution from EU funds	Contribution from other sources	Total	Impact on government budget	Contribution from EU funds	Contribution from other sources	Total
Planned	0.4	0.2	0.3	0.9	0.6	0.2	0.0	0.8
Implemented	0.4	0.0	0.0	0.4	0.6	0.2	0.3	1.0

Note: Planned means costs estimated at the time of approval of measures.

Source: Ministry of Finance.

Box 1.3. **The government's fiscal stimulus packages** (cont.)

When measuring the size of the stimulus, it is necessary to look at what has been actually spent in a particular period. Table 1.3 shows that the planned stimulus was 0.9% of GDP in 2009 and 0.8% of GDP in 2010 (including all funding sources). The actual implementation amounted to 0.4% of GDP in 2009 and 1.0% in 2010 as some of the measures were duplicative and carried relatively tight conditions for utilizing a measure. For instance, the contribution to new employee's wages is targeted to low income employees, similar to the employee tax credit (which was made more generous during the crisis), which resulted to the situation that the former was rarely used. Only 156 employees received support from this measure, instead of 7 000 assumed. Also, the lower utilization of earlier VAT refunds may be related to additional conditions that had to be met. At the same time, unused funds in 2009 related to SME programmes and loan availability, some energy saving and energy infrastructure improvement projects were shifted to the next year due to longer-than-expected implementation lags.

of employees, such as teachers, are exempted from this cut, the effective cut in the aggregate wage sum will be somewhat lower). In addition, a 10%-reduction is envisaged for public spending on goods and services. Furthermore, some decreases are planned for transfers and government investment. The focus of the consolidation package on spending cuts is welcome as cross-country evidence suggests that consolidation efforts are more successful and sustainable if they focus on the spending side. Also, government consumption is the biggest public spending item in Slovakia, accounting for one-half of the total, somewhat more than the (un-weighted) OECD average of 45.5%. Around 40% of the consolidation measures are expected through revenue raising measures. These include primarily a temporary increase in the standard VAT rate from 19% to 20% (until the budget deficit has fallen below 3% of GDP), hikes in excise taxes (*e.g.* on beer and tobacco) and the phasing out of some tax expenditures (*e.g.* exemptions for natural gas and coal used for heating households). Consolidation will have to continue beyond 2011 to bring the headline deficit to below 3% of GDP by 2013. Focus should be put on the second biggest expenditure item, namely social security benefits, which accounts for one-third of all expenditures, roughly 4 percentage points more than in the (un-weighted) OECD average.

Reforms to the pension system are urgently needed

In view of the impact of ageing on fiscal sustainability, reforms to the pension system are urgently needed. Under current policies, pension expenditures are projected to increase by 3.6% of GDP by 2060, compared with an average increase of 2.3% of GDP in the EU27 (European Commission, 2009b). While the ratio of the population aged 65 or above to the labour force is currently much lower in Slovakia than in the OECD, this will change rapidly over the next decades, not least due to the very low fertility rate. Indeed, by 2060, Slovakia is projected to have the second-highest old-age dependency ratio among EU countries with more than one-third of the population aged over 65 years (European Commission, 2009a). While an important step towards long-term sustainability has been made by introducing the second (defined-contribution) pension pillar in 2005 (Box 1.4), more changes are needed in the first (defined-benefit) pillar. Also, the re-opening of the second pillar in 2008 and 2009 has not helped in improving sustainability, even though the net impact of this measure was low as few participants returned to the first pillar (with the majority of them aged above 40 years).¹⁰

Box 1.4. The Slovak pension system: set-up and recent changes

When becoming independent in 1993 the Slovak Republic inherited a public PAYG pension system. Although the financial situation of the pension system was stronger than in many other economies, with the annual deficit amounting to less than ½ per cent of GDP in the pre-reform years, the system was clearly unsustainable in the light of population ageing. Due to this very gloomy outlook the government pushed for reforms, starting in 2004 with parametric changes to the PAYG system. Under the new system, the overall contribution rate to pension insurance was raised to 28.75% (from 28% before) with employers paying 21.75% and employees paying another 7% (between 2004 and 2005 the contribution rate of employees was reduced by ½ percentage point for each child). Of this contribution 18 percentage points are used to finance old age pensions, 6 a disability fund and 4.75 a reserve fund that is used to cover any shortfalls in the other funds. The upper ceiling of the base of pension contributions (and pension entitlements) was set at three times the average wage. Benefits are based on a points system, which is equivalent to providing pensioners with 1¼ per cent of the average lifetime wage per year of service; an earlier year's pay is revalued in line with the growth of average wages to take account of changes in living standards between the time pension rights accrue and the time they are claimed. Post-retirement pensions are indexed 50% to nominal wage growth and 50% to inflation.

The 2004 pension reform removed the significant elements of redistribution that were incorporated in the pre-reform system and transformed the system from one based on the security principle towards one based on the insurance principle. A direct link between contributions paid and benefits received from the system was established, one of the tightest links of pensions to earnings among OECD countries. In line with the transition towards the insurance principle, the new system does not contain a minimum pension in order to separate social insurance from social assistance. Individuals who have not accumulated enough pension points or who do not qualify for a pension at all may apply for social assistance which is provided at the minimum subsistence level.

An important element of the reform was to increase the statutory retirement age from 60 years for men and 53 to 57 years (depending on the number of children) for women to 62 years for both. The increase is being introduced gradually at a rate of 9 months per year beginning in 2004. As a result, the legal retirement age of 62 was reached in 2006 for men but will not be reached until 2015 for women with four or more children.

As the pension system remained unsustainable even after the parametric changes, the government decided to undertake a more fundamental reform of the system and complemented the defined-benefit (DB) first pillar with a second defined-contribution (DC) pillar that came into force in early 2005. Under the mixed system, the share of the pension contribution that is specifically designated for old age (18% out of the total 28.75%) is split half-half between the DB and DC pillars. The DB pension entitlements are derived from the pension points as before, with years of payment only to the DB system regarded as generating full years of contribution, while years under the mixed system generate only half years of contribution. Additional benefits come from the DC pillar with accumulated contributions and investment returns converted into a pension-income stream at the time of retirement. The minimum period of pension contributions to a pillar needed to claim a pension from that pillar was set at 10 years. All contributions are collected by the Social Insurance Agency (SIA) but the DC contributions are transferred to the private pension company of the contributor's choice. Whilst existing labour market participants were allowed a transition period (from January 2005 to June 2006) to choose whether to stay in the DB pillar or to join the mixed system, participation in the mixed system was made mandatory for those entering the labour market for the first time after December 2004. More than half of all labour market participants decided to join the mixed system, and by end-2007, over 1.5 million individuals (out of a total of 2.6 million individuals enrolled in pension insurance) were participating in the mixed system.

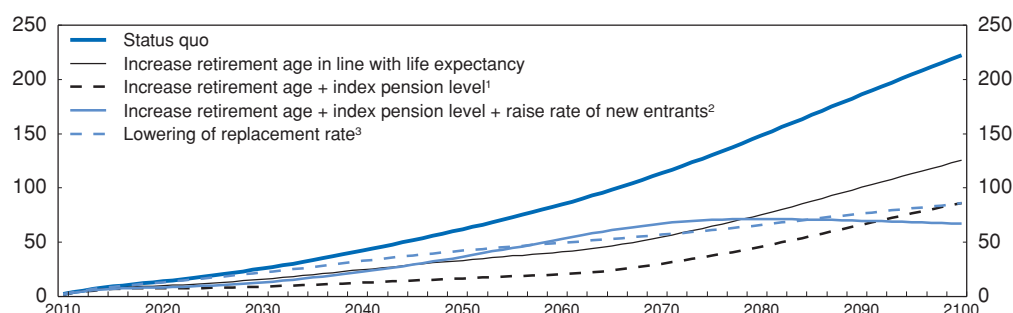
Box 1.4. **The Slovak pension system: set-up and recent changes** (cont.)

The regulations for participation in the DC pillar were modified temporarily in 2008 and 2009 with the government allowing those pension scheme members who found the DC pillar disadvantageous – either based on their previous experience or because they were not well informed when making their original choice – to revert to the full coverage within the DB pillar or those who were in the DB pillar to join the mixed system. Amongst those who left the DC pillar were mostly people above the age of 45 who essentially had no choice but to move because the simultaneous increase in the minimum contribution period to 15 years meant they could not draw a pension from the DC pillar anyway. In addition to opening up the second pillar, the government made participation in it voluntary for new labour market entrants.

In a no-change scenario, the public pension system will accumulate debt of over 200% of GDP by 2100 (Figure 1.6).¹¹ Several policy options are available to reduce this increase (OECD, 2009a). The pension replacement rate could be lowered, for example by adding a sustainability factor into the pension formula to ensure an automatic cut-back of replacement rates as the old-age dependency ratio worsens. Simulations suggest that lowering the replacement rate by 30% relative to the status quo would significantly lower the debt level incurred in the public pension system over the long run (Figure 1.6). An alternative outcome would be achieved by increasing the retirement age in line with gains in life expectancy (once the increase in retirement age for women to 62 years is fully legally phased in by 2015) and letting pensions rise only with the rate of inflation (instead of the current indexation of 50% to nominal wage growth and 50% to inflation), as is currently discussed. The number of years spent in retirement would thereby remain constant and the consumption level at the age of retirement would be protected throughout the retirement period. These measures would more than halve the future increase in the accumulated debt in the first pillar. While raising the social security contribution rates would be another option to deal with the funding shortfall going forward, it should be taken into account that already today the contribution burden of employees in Slovakia is around 3 percentage points higher than in the OECD average, thereby lowering work incentives.

Even with these changes, however, the long-term sustainability would not be achieved as the debt level would still rise afterwards (although less so in the case of a lowering of the replacement rate). To fully account for the effects of ageing, the importance of the second pension pillar needs to increase. Since participation in the second pillar has been changed from mandatory to voluntary for new labour market entrants in 2008, the share of those who opt for the second pillar has dropped from around 15% to below 2%.¹² If, along with an increase in the retirement age and the changes to pension indexation, a 100% participation rate of new labour market entrants in the second pension pillar could be achieved (for example, in the case of making participation mandatory), the accumulated debt level would decline from about 2070 onwards. One way to promote participation in the second pillar would be to make it the default option for new labour market entrants, i.e. participants would have to specifically opt out if they don't want to be part of the second pillar. Some commentators have argued for a change in the split of the overall pension contribution rate between the first and second pension pillar (currently, the contribution rate to both pillars is 9%), notably raising the contribution rate for the first and lowering it for the second pillar. It should be noted that this would only lead to a short-term relief for the deficit in the first pillar but would increase future liabilities of the first pillar and thus worsen its long-run sustainability.

Figure 1.6. **Projected debt accumulation in the first pension pillar**
% of GDP



1. Increase retirement age in line with life expectancy and index the pension level to inflation.
2. Increase retirement age in line with life expectancy and index the pension level to inflation and raise the rate of new entrants into 2nd pillar to 100%.
3. Lowering of replacement rate by 30%.

Source: Institute for Economic and Social Reforms (INEKO).

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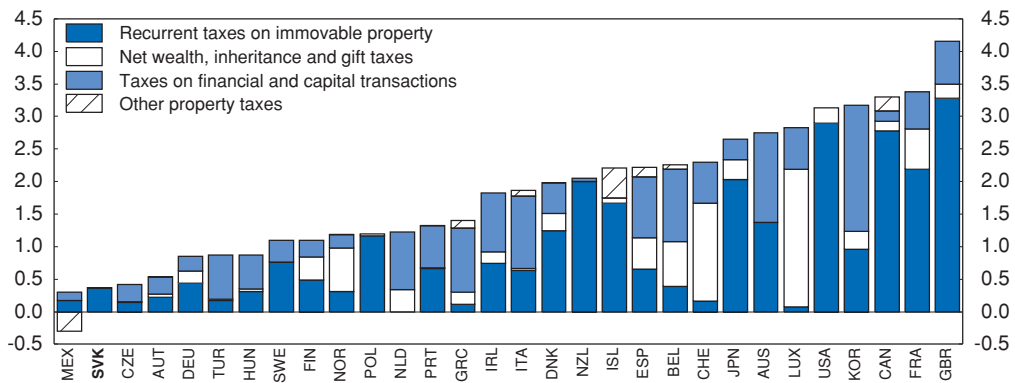
In addition to the standard pension payments, a special allowance (Christmas allowance – “*vianočný príspevok*”) has been paid once a year since 2006 to some groups of pensioners with incomes below a certain level.¹³ Although the budgetary implications amount to only 0.1% of GDP for 2010, it should be considered to gradually phase out this discretionary allowance. However, the broader question involved is a concern about old-age poverty and about a lack of redistribution in the pension system. While the ratio of the incomes of older people in Slovakia to average population income is below the OECD average, old-age poverty rates (defined as the share of over 65-year olds with incomes of less than half the median population income) are only about half of the OECD average (OECD, 2009b). However, the redistributive effect of the pension system is very weak by OECD standards, due to a very strong link between earnings and pension during retirement.¹⁴ Apart from social concerns, this tight link may be problematic as it creates the risk of poverty traps as a substantial proportion of workers appears likely to reach a pension in retirement that does not significantly exceed social assistance (OECD, 2007a). For these workers, pension contributions may lower work incentives. The phasing out of the special allowance may thus need to be coupled with reforms to increase redistribution in the system. One option in this regard would be to weaken the very strong link between earnings and pensions during retirement. An alternative option would be to reform the tax treatment of pensions by subjecting pensions to personal income tax and using these revenues to raise first pillar pensions as recommended in previous *Surveys* (OECD, 2007a).¹⁵

Revenues should be raised from immobile tax bases

Real estate taxation needs to be reformed,...


In addition to expenditure cuts, revenue increases may need to be considered. Evidence from OECD countries suggests that taxes on immobile bases have less adverse effects on growth than others, such as labour or capital taxes (Johanson *et al.*, 2008). With this background, it is unfortunate that taxes on real estate – one of the least mobile bases – are scarcely developed in Slovakia. Revenues amount to around ½ per cent of GDP, around one-quarter of the average OECD country (Figure 1.7).

Figure 1.7. **Property tax revenue**
% of GDP, 2008¹



1. 2007 for Australia, Belgium, Greece, Mexico and Poland.

Source: OECD, Revenue Statistics – Comparative Tables Database.

StatLink  <http://dx.doi.org/10.1787/888932358428>

Real estate taxation in Slovakia consists of a land tax, a tax on buildings (including residential buildings, buildings for agricultural production, industrial and other buildings) and an apartment tax. The land tax is based on the value of the land as set by regulation, at a rate of 0.25%. Both the building and the apartment tax are based on the size of the property and the tax rate is EUR 0.033 per square metre. Municipalities may increase or decrease the rate on the basis of local conditions with some restrictions regarding the variation of tax rates within each municipality.

Apart from yielding little revenue, the current taxation of real estate is also problematic from a structural policy point of view. It is below a neutral level when compared with an investment in financial assets (OECD, 2009a). Thereby, it is supporting demand for owner-occupied housing and hindering the development of a private rental market, with adverse effects on geographical labour mobility. Also, at least the set-up of the building and apartment tax, where the tax rate per square metre is fixed in euro terms, amplifies volatility of house prices as the effective tax rate is negatively correlated with the real estate value (i.e. the effective tax rate declines when the value of the property increases and *vice versa*). At the same time, it is a legitimate concern that movements in real estate taxes resulting from rising house prices can create liquidity problems notably for older persons. However, this can be solved in other ways than keeping real estate taxes at a low level, for example by mortgage financing of the tax liability (OECD, 2007b). The taxation of real estate should be strengthened by raising the land tax rate, setting a percentage tax rate for the building and apartment tax and in both cases the tax base should take the market value of the property into account.

Capital gains incurred by owners who owned their permanent residence for at least two years prior to the sale are currently exempted from taxation. While eliminating this tax exemption would abolish a distortion in the system, the main problem of such a tax is the potential lock-in effect. If owners were encouraged to hold on to their residence for a longer period as a result of such a tax, this could mean an inefficient use of the housing stock and increase impediments to mobility (OECD, 2009a). Due to these concerns, the majority of OECD countries exempt capital gains in housing from taxation and the Slovak authorities should consider such a tax only as a last option.

... existing VAT exemptions reviewed,...

Slovakia has a fairly high share of consumption taxes in total tax revenues relative to other OECD countries. The standard VAT rate of 19% is around the EU average and exemptions or the application of reduced VAT rates are not widespread. However, performance in VAT collection could be improved. There are indications that tax collection within the existing regulatory framework is inefficient (Chapter 2). Also, notwithstanding the fact that few exemptions exist, they are nevertheless a poorly targeted way of supporting low-income households.

In particular, consideration should be given to phasing out the reduced rate for those goods where it still applies. Currently, the reduced rate of 10% is applied on medicine and medical devices and on books. In addition, the VAT rate on selected agricultural products was recently lowered to 6%.¹⁶ Their total impact on VAT revenues accounts for 0.2% of GDP on an annual basis, mostly accounted for by the revenue losses on medicaments and medical devices. While the additional revenues from phasing out the reduced rates are almost equal to what could be achieved by increasing the standard rate by 1 percentage point, it needs to be taken into account that low-income households would need to be compensated for the higher prices if the reduced VAT rate were increased. Thus, the additional revenue gains would be lower in net terms, but nevertheless phasing out the reduced rate and compensating low-income households is a much better targeted policy than applying reduced rates.

... and the scope for increasing environmental taxes used

A good starting point for raising revenues from environmental taxes is to phase out tax exemptions on energy taxes, as argued in Chapter 3. The revenue losses associated with these exemptions are estimated to amount to around 0.2% of GDP. Besides, such exemptions suppress the price signal created by an environmental tax, thus encouraging wasteful consumption, providing incentives to develop or maintain energy-consuming technologies and impeding investment in clean energy sources. While the additional tax revenues from phasing out the exemptions may accrue at least in the short-term, as adjustment to higher energy costs takes time, they should not be considered as a permanent revenue stream. In addition, some compensation may have to be paid to low income households, thus reducing the net tax take.

Implementing solid fiscal rules would be beneficial

Fiscal rules can be particularly helpful in budget consolidation. Evidence from OECD countries suggests that countries with fiscal rules have longer-lasting consolidation than others (Guichard *et al.*, 2007). In particular, during times of high deficits and increased scrutiny by financial markets, such rules provide a valuable guide post. Besides being subject to the rules laid down in the Maastricht Treaty and the Stability and Growth Pact, three laws govern public expenditures at the national level in Slovakia. The *General Government Budgetary Rules Act* sets out the rules for the preparation and implementation of the general government budget over the following three years. The *State Budget Act*, which is concluded for each budget year, stipulates that windfall revenues may be used for additional spending up to 1% of originally budgeted expenditure. Local government entities are governed by the *Local Government Budgetary Rules Act* which is similar to a golden rule (budgets excluding capital investment have to be balanced) and caps their maximum debt level.

With a view to the need for significant consolidation, Slovakia should consider strengthening and reforming the rules as suggested in the previous *Survey* (OECD, 2009a; Annex 1.A1). In particular, binding multi-year expenditure ceilings with a strong consideration of the cyclical position would improve the budgetary framework and should be implemented in a way to comply with the medium-term structural deficit objective of the Stability and Growth Pact. Such a rule, which may be combined with a debt rule acting as an emergency backstop, offers some protection against turning revenue windfalls into structural spending increases. The binding expenditure ceilings should include tax expenditures and may exclude cyclical spending items, such as unemployment benefits, in order for automatic stabilizers to work in both directions.

The fiscal framework would be further strengthened by setting up an independent fiscal council as several other OECD countries have done and as it is currently discussed by the government. The aim of such an institution is to depoliticize somewhat the key aspects of fiscal policy (thus lowering a potential bias towards deficits or pro-cyclical behaviour). In addition, recent significant revisions of past deficits have highlighted the need to raise overall transparency which would contribute to more disciplined fiscal behaviour. A fiscal council could provide recommendations for the purpose of budget formulation, including forming an opinion about the macroeconomic situation, and undertake analysis of fiscal issues, such as long-term sustainability, or simulate policy alternatives in order to inform the public (and politicians) about the consequences. Furthermore, a council should assess the compliance of budget numbers with the fiscal rules. By constructing a comprehensive and publicly available fiscal database, the council could significantly increase the transparency of public finances. There is evidence that a fiscal council usually goes along with improved fiscal performance (Debrun and Kumar, 2008). However, there remains some uncertainty over the direction of causation, i.e. whether such councils are usually set up by governments who are already fiscally responsible. For the council to be effective it will need political support and in any case should not be seen as a “magic bullet” for achieving and securing fiscal discipline.

Box 1.5. Recommendations for emerging from the crisis

Labour market policy

- Maintain current support for labour market programmes until the risk of higher unemployment has declined significantly. Ensure adequate public employment service capacities, increase spending on training measures and monitor the effectiveness of start-up incentives. Tighten requirements for start-up incentives in case they are found to be less effective. Implement cost-efficiency analysis of existing programmes and reduce their number if necessary.
- Significant increases in the minimum wage should be avoided. In addition, some differentiation of the minimum wage to deal with pockets of high unemployment should be considered. Consider establishing an independent expert commission to advice on decisions about the minimum wage. Phase out the differentiation of minimum wages by degree of work difficulty.
- The new recent change in the law which made legal extension of collective wage agreements dependent on the consent of affected firms is welcome, but ending legal extension should be considered.

Box 1.5. Recommendations for emerging from the crisis (cont.)

Fiscal consolidation

- Restrain government consumption. Reducing the number of public employees and freezing wages in nominal terms are options in this regards. Identify cost savings in government procurement.
- Increase the sustainability of the pension system by introducing a sustainability factor in the pension formula that adjusts replacement rates if the old-age dependency ratio worsens. Alternatively, raise the retirement age in line with life expectancy and index pensions to inflation only. Increase participation in the second pension pillar by making it the default option for new labour market entrants. Consider phasing out the annual Christmas allowance that is paid to some pensioner groups, coupled with a reform to introduce more redistribution into the pension system.
- Increase the taxation of real estate by raising the land tax rate, setting a percentage tax rate for the building and apartment tax and in both cases taking the market value of the property into account when setting the tax base.
- Implement binding multi-year expenditure ceilings and an independent fiscal council.

Notes

1. Employment was supported by an increase in the use of a workfare programme that requires participants to engage in small scale services for the local municipality or voluntary work in order to maintain their benefit (activation works). The number increased by 28 000 in 2008 Q3 (equivalent to a 1 percentage point lower unemployment rate).
2. The estimates suggest that a 1 percentage point increase in the unemployment rate translates into an increase of 0.6 percentage points in the long-term unemployment rate (the number of those who are unemployed for more than 12 months as a share of the labour force) against an OECD average of around 0.4. This estimate takes into account institutions, such as the level of product market regulation, employment protection legislation and the benefit level as well as recent changes in these (Guichard and Rusticelli, 2010).
3. The solidarity reserve fund is part of the pension system and protects employees if the employer does not pay their share of contributions. If an employer fails to pay contributions for an employee, the fund covers these (avoiding that the employee has to go to court against the employer) and later pursues the employer trying to recover the funds. Contributions to the fund are paid by employers, self-employed for whom retirement pension insurance is mandatory, voluntary contributors to the pension scheme and the state.
4. The employee bonus operates like a negative income tax: Income from employment that is lower than a threshold is supplemented by a state transfer to the employee amounting to a maximum of EUR 83.25 per year. This amount was increased on 1.3.2009 to EUR 181.03 per year for the period 2009 to 2010. In addition to these changes, the basic allowance of the personal income tax was increased significantly, mostly benefitting low-income earners.
5. Active measures comprise Public Employment Services and administration, training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation and start-up incentives.
6. Expenditures for education and training for jobseekers increased by over 50% from 2007 to 2009, but at around 0.01% of GDP remain still much below the 0.14% of GDP spent in the average OECD country.
7. The 2009 and 2010 forecast are based on announced minimum wage increases and official Ministry of Finance forecasts for average wage growth applied to median wage levels in 2008.
8. The minimum wage to median wage ratio on a regional basis is calculated using median wages including part-time workers. By contrast, the data for the whole economy is based on average wages of full-time workers only to allow for OECD-wide comparison. The two are therefore not

strictly comparable. However, this does not alter the interpretation of the relative differences in ratios among regions in Slovakia.

9. For example, legal extension does not apply for companies with fewer than 20 employees or if more than 10% of employees are handicapped.
10. During the first six-month period of re-opening between January and June 2008, 106 600 people left the second pillar while 22 900 people joined. The net impact amounts to 6½ per cent of all participants in the second pillar. In the period mid-November 2008 to end-June 2009 66 000 left the second pillar while 15 000 joined the second pillar. The net impact of 51 000 amounts to 3.5% of all participants in the second pillar. It is estimated that the latter measure will raise annual expenditures in the first pillar by around 0.1% of GDP mainly in the period 2030-50.
11. These projections are made by INEKO using the World Bank's Pension Reform Options Simulation Toolkit (PROST) model and assume that 10% of new labour market entrants enter the second pension pillar. For further details see www.ineko.sk/clanky/kalkulacka-financnej-stability-penzijneho-systemu.
12. As regards the stock, around two-thirds of all employees are participating in the second pension pillar.
13. The allowance amounts to EUR 66.39 if the pension level is less than 20% of the average wage and decreases to EUR 49.80 if the pension level is less than 60% of the average wage.
14. While in the average OECD country, the gross pension replacement rate decreases from 72.2% for persons who earned half the average wage before to 50% for those who earned twice the average wage, the replacement rate in Slovakia is constant for all pensioners at 56.4% regardless of their prior earnings level (OECD, 2009b).
15. Currently, pension contributions are not included in taxable income and accruals and pension benefits are tax-exempt (i.e. exempt-exempt-exempt (EEE) arrangement). Subjecting pensions to taxation could imply either taxing the pension payment (EET) or letting contributions be paid out of taxed income (TEE).
16. This applies to meat, milk, fish, eggs and honey sold in limited quantities to consumers in the premises of a small agriculture farm.

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ANNEX 1.A1

Progress on structural reform

This Annex reviews action taken on recommendations from previous *Surveys*. Recommendations that are new in this *Survey* are listed in the relevant chapter.

Recommendations from previous <i>Surveys</i>	Action taken since the February 2009 <i>Survey</i>
Labour market	
Ensure wages adjust to disequilibria in the labour market: Abolish the legal extension of collective wage settlements or at least, ease the conditions for exoneration and make generous use of the scope for exoneration.	It is planned to introduce the requirement of agreement of the affected employers before legally extending collective wage agreements to the whole sector.
Ensure that further increases in the minimum wage do not have negative impacts on employment opportunities. Take into account advice from an independent expert commission when making decisions about the minimum wage level.	No action.
Remove barriers to higher participation of older workers: Raise the pension discounts for retirement before the statutory retirement age as well as supplements for retirement after the statutory retirement age to levels implied by actuarial neutrality.	No action.
Shorten the duration of the parental leave benefit entitlement, with the benefit for the remaining period up to three years being paid in the form of subsidies for childcare.	Allowances are provided to parents who return to work before the end of the parental leave (since 2009) and before the expiration of their parental benefit claim (since 2010).
Remove barriers to higher female labour participation: Reduce the tax wedge on second earners in two-earner households by lowering the marital income allowance. Consider introducing a surcharge on health insurance for non-working spouses.	No action.
Education	
Make tertiary education more attractive to technical secondary school graduates: Develop short (2-3 years) occupationally oriented programmes. Reconsider the policy of not introducing tertiary fees for full-time students. Make loans with income-contingent repayments available.	No action.
Increase participation in continuing vocational education and training (CVET)/lifelong learning (LLL): Ensure that official accreditation is available to programmes meeting certain minimum quality standards. Priority should be given to putting in place arrangements for the accreditation of non-formal and informal learning within the national and European qualifications frameworks. Make employees' costs of participation in CVET/LLL tax deductible.	The law on lifelong learning, adopted in 2009, defines the rules and conditions of accreditation and creates an accreditation commission in charge of evaluating the compliance of the programmes. Regarding vocational education, since 2009, employers can deduct the support they provide to vocational students from the tax base.
Housing market	
Avoid overheating of the housing market: Continue to carefully monitor financial stability risks. Tighten regulation, such as lowering the loan-to-value ratio, if there are indications of an overheating in the housing market. Ensure strong cross-border co-operation with foreign supervisors.	No action.
Make housing supply more responsive to demand. Investigate constraints on competition and possible infringements of law in the construction sector to guard against anti-competitive behaviour. Swiftly implement the planned new Building Act in order to simplify and speed up the land planning process.	No action.

Recommendations from previous <i>Surveys</i>	Action taken since the February 2009 <i>Survey</i>
<i>Housing market (cont.)</i>	
Remove obstacles to the expansion of a private rental market: End the right-to-buy policy or make it less attractive by adjusting conditions closer to market prices. Increase the taxation of real estate by basing it on actual property prices and by raising the tax rate to neutral levels. Further reduce the subsidisation of owner-occupied housing.	A legal framework for new state economic instruments to encourage the development of the rental sector and for the provision of public subsidies for housing development is being prepared.
Consider phasing out the tenant protection for indefinite rental contracts.	Amendments of the current legal framework for relations of owners and tenants with the goal of a more flexible housing market are being prepared.
Consider bringing the rent level in public housing apartments closer to market levels or at the very least for the tenants who no longer fulfil the eligibility criteria. Consider raising housing allowances, make them more widely available and take into account regional differences in housing costs when setting the amounts.	Laws defining the concept of social housing, revising price regulation of public rental housing and housing allowances are being prepared.
<i>Product markets</i>	
Resume the privatisation process. Privatize the remaining government shares in the telecommunications incumbent. Pursue further entry of private capital in companies active in electricity generation and trade as well as in gas trade.	No action.
Make the disbursement of subsidies to the railways industry more conducive to competition. Avoid discretion in the allocation of subsidies to the railways industry. Instead of disbursing subsidies to the incumbent railway transport service operator, they should be used to lower network access prices or be made contestable through the public tendering of public service obligations.	No action.
Foster the spread of e-business and e-commerce: Establish centres that provide comprehensive information on the benefits of e-business and e-commerce, disseminate best practices, offer training courses and workshops as well as support services for the establishment of e-business and e-commerce activities. Consider the involvement of business and industry associations in order to gain economies of scale and to better tailor the offered services to the needs of specific industries.	No action.
Reassess the current regulatory framework on consumer protection, privacy and security to increase transparency and to ensure that consumers participating in e-commerce activities are sufficiently protected from any misuse. Introduce efficient and fair out-of-court dispute settlement mechanisms to build consumer confidence in electronic commerce.	A law to strengthen consumer protection is being prepared. Points of single contact where consumers can get useful information on alternative ways of resolving their dispute and undertake free sessions of mediation will be established.
Strengthen competition in the telecommunications sector. Reduce delays in the introduction of remedies to foster competition in fixed line telecommunications services. Strengthen the independence of the telecommunications regulator.	No action.
Quickly proceed with the privatisation of Slovenska Posta. Abolish the 2008 amendment of the Postal Act that grants Slovenska Posta the exclusive right to deliver hybrid mail	No action.
Remove barriers to competition in the regulation of liberal professions: Abolish compulsory chamber membership and decrease their powers to take decisions concerning the regulation of activities of professional enterprises. Abolish entry requirements with regard to experience for setting up a business and ease restrictions on the legal form of business. Ease conduct regulation in legal and notary professions. Reconsider the law that prohibits advertising in legal and notary professions and reduce price regulation in these sectors.	Some of the barriers have been abolished by the Act No. 136/2010 transposing the EU Directive 2006/123/EC on Services in the Internal Market.
Extend the points of single contact that already exist for small enterprises to entrepreneurs of the liberal professions.	The Act No. 136/2010 transposing the EU Directive 2006/123/EC on Services in the Internal Market has extended the points of single contact to liberal professions.
Make sure that e-government is implemented by the target date of 2013: Ensure that the training of employees in computer and internet skills as well as the adoption of the legal framework to e-government services takes place at an early stage of the implementation phase. Assign a high-level representative in each ministry responsible for the implementation of the action plan.	No action.
<i>Public sector reform</i>	
Encourage greater use of results and performance information in the budget process in all government departments. Encourage greater use of accruals-based accounting.	Since 2009, programme budgeting is mandatory for municipalities.
Obtain minimum efficient scales of provision of cost-effective and adequate quality services in small municipalities.	No action.

1. EMERGING FROM THE CRISIS

Recommendations from previous <i>Surveys</i>	Action taken since the February 2009 <i>Survey</i>
Public sector reform (<i>cont.</i>)	
Fully enforce the provisions of the Law on Conflicts of Interest, and the other instruments of the legal framework for fighting corruption in the sub-central government layers. Build public support for the adoption of the new draft Law on the Forfeiture of Illegally Acquired Assets.	No action.
Introduce market mechanisms in the provision of public services.	No action.
Provide public policies in support of the Roma minority with a reliable information base. Facilitate the voluntary provision of information by reducing the stigma associated with being Roma.	No action.
Fiscal policy	
Consider incorporating a deficit rule into the constitution. Consider a strong reporting system and ex post assessments of the government's performance <i>vis-à-vis</i> the rules. Introduce multi-year expenditure ceilings, excluding cyclical expenditure items, such as unemployment benefits. Consider introducing an adjustment mechanism to claw back accumulated deviations from the fiscal rule in case of projection errors.	No action.
Stabilize the functioning of the pension system: Refrain from any opening-up of the two pension pillars. Consider making participation in the DC pension pillar mandatory for all persons joining the labour market for the first time or at the very least, make participation in the DC pillar the default option. Do not change the split between the DB and DC schemes on an ad hoc basis due to short-term budget considerations.	The government considers making participation in the second pillar the default option.
Ensure the long-term sustainability of the DB pillar: Avoid raising revenues in the short term at the expense of higher liabilities in the long run and use the increased pension contributions for the DB pillar stemming from recently introduced modifications of the pension system to reduce government debt. Increase the statutory retirement age in line with gains in life expectancy as soon as the increase in the retirement age for women to 62 years is fully legally phased in by 2015. Consider making the indexation rule less generous by indexing pension benefits solely to inflation or at least consider modifying the existing pension formula to ensure an automatic cut-back of replacement rates as the old-age dependency ratio worsens.	The government considers a reform of the pension indexation system.
Strengthen the solidarity of the pension system.	No action.
Shift the responsibility for setting the benchmark to the pension fund level, combined with the requirement to regularly publish information about their performance against an absolute benchmark.	No action.

Chapter 2

Increasing public sector efficiency

Given the deterioration in public finances, there is now very little scope for higher spending. Raising public sector efficiency would free up resources and yields better outcomes with the same inputs, helping to stimulate productivity and thus potential growth. Raising efficiency in tax collection (notably VAT) is urgently needed, plans to unify the collection of tax and social security contributions should be implemented swiftly and drawing on EU funds needs to become more efficient. In addition, raising the efficiency in healthcare should be a priority. This involves dealing with the high out-of-pocket payments and reforming the remuneration structure of doctors. Pharmaceutical spending is excessive and can be reduced, notably by further fostering generic substitution. Impediments to competition among health insurance funds should be reconsidered and the risk-equalisation system should be improved.

The deterioration of public finances, the budget deficit worsening by around 6 percentage points of GDP in 2009, requires significant consolidation. In such a situation, policies to increase the efficiency of the public sector – both on the expenditure and the revenue side – can be particularly helpful. Such measures not only improve the fiscal situation (thereby freeing up resources for other purposes, such as support for eco-innovation; Chapter 3) but also, by achieving better outcomes with the same inputs, help to stimulate productivity growth and thus potential growth. This in turn helps improving the sustainability of public finances.

Overall public sector efficiency in the Slovak Republic is about average among new EU member countries, other emerging markets and catch-up economies (Afonso *et al.*, 2009).¹ In part, this reflects past efforts to enhance the quality and efficiency of public sector service delivery, such as a significant improvement in budget procedures or the implementation of a medium-term fiscal framework (OECD, 2004). Also, government expenditures as a share of GDP are significantly below the OECD average. However, the output that is achieved with these expenditures could be substantially higher in some areas, notably in health care (Journard *et al.*, 2010a). In addition, while efficiency in primary and secondary education is around average (Sutherland *et al.*, 2007), it is relatively low in tertiary education (St. Aubyn *et al.*, 2009) and reforms in this area are needed to boost the innovative capacity of the economy (Chapter 3).

This chapter focuses on selected aspects of public sector efficiency that seem most pressing in the case of Slovakia:

- The collection of tax and social security receipts needs to be enhanced, notably by improving VAT collection and by unifying the collection of taxes and social security contributions, as planned by the government,
- the drawing of EU funds has to become more efficient, and
- the efficiency of healthcare spending – which account for one of the highest shares of total government expenditures in the OECD (Table 2.1) – is weaker than in many other OECD countries (Journard *et al.*, 2010a) and needs to be raised.

Table 2.1. **Government expenditure by spending category**

	General public services	Public order and safety	Education	Health	Social security and welfare	Housing and community amenities	Economic services	Other
Slovakia	10.8	5.7	11.5	18.7	30.6	2.2	12.4	8.2
Czech Republic	10.3	4.9	10.9	16.7	30.2	2.7	16.1	8.2
Germany	12.5	3.6	8.8	14.3	46.5	1.9	7.2	5.2
United States	13.7	5.7	16.9	20.7	19.0	1.8	9.8	12.3
Hungary	18.8	4.0	10.7	9.8	34.8	2.0	13.0	6.9
Poland	13.1	4.4	13.6	10.9	37.3	2.7	10.8	7.3
OECD	13.7	3.9	12.9	15.2	34.0	2.0	10.6	7.7

Note: OECD average is non-weighted.

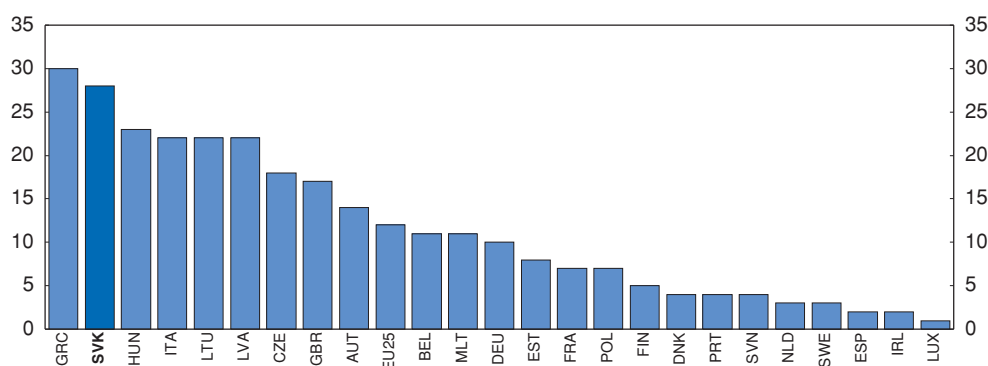
Source: OECD, National Accounts, except for Australia and Switzerland. IMF, *Government Finance Statistics Yearbook* for the others.

Improving efficiency in tax collection

The VAT gap is very high...


Consumption taxes play an important role in the Slovak tax system; the share of taxes on goods and services in total tax revenues reached 38.4% in 2007, around 10 percentage points higher than the EU19 average. Considering the different distortionary effects of taxes, such a tax structure which relies more on taxing consumption than on taxing income, is likely to be less harmful to growth (Johansson *et al.*, 2008). However, this positive assessment needs to be qualified. First, one factor behind the high proportion of consumption taxes in overall revenues is the low level of total tax revenues compared to other European countries.² Second, given that the standard VAT rate of 19% is around the EU19 average and the share of goods that are taxed with the reduced VAT rate is relatively low [the lost revenue due to the application of the reduced rate is estimated to be the lowest among EU countries (Copenhagen Economics, 2007)], Slovakia should get much more revenues from consumption taxes. This can be seen by looking at the VAT gap, which measures the actual VAT revenues as a ratio of the “theoretical” revenues that could be gained if all goods were taxed at their respective VAT rates (Figure 2.1). The smaller the gap, the more efficient a country is in collecting VAT.³

Figure 2.1. **Estimates of the VAT gap**
%, 2006



Note: The VAT gap is defined as the difference between the accrued VAT receipts and a theoretical net liability for the economy as a whole as a share of the theoretical liability in 2006.

Source: Reckon (2009), *Study to quantify and analyse the VAT gap in the EU25 member states*.

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... suggesting a lack of efficiency in tax collection

The VAT gap was estimated to stand at 28% in 2006, the second highest figure among EU25 countries and well above the EU25 average of 12% (Reckon, 2009). While no more up-to-date figures are available for the VAT gap, the continued decline in the VAT revenue ratio (which compares actual with theoretical tax revenues, but does not account for reduced rates or exemptions) is one indication that Slovakia's position is likely to have worsened further since then. One of the potential sources of decreased effectiveness might be the entry into the European Union in 2004. The existing rules concerning VAT payments in the single market (zero-rated exports and collection of VAT on imported goods at the time of the next periodic tax return [instead of at the border]) extend the possibilities for tax evasion and fraud.⁴ This view has also been mentioned in a study prepared by the Slovak Ministry of Finance (Krajcir and Odor, 2005).

Cross-country indicators on the operational performance of tax administration suggest that Slovakia could improve the effectiveness of tax collection (OECD, 2009b):

- The incidence of tax refunds, as measured by the share of refunded taxes to total tax revenues, is one of the highest among OECD countries, possibly related to inflated VAT refund claims (Harrison and Krelove, 2005).
- The share of unpaid taxes relative to annual tax revenues is the highest among OECD countries and has been increasing from 2005 to 2007 (last year available), suggesting that the effectiveness of debt collection is weak.
- The number of verification activities measures by the number of completed actions per taxpayer is lower than in many other OECD countries.⁵ However, the value of completed verification actions as a share of revenues, as well as a share of expenditures of verification staff, is relatively high, indicating that the return to verification activities could be large. Audits should be risk-based to be most effective and to keep administrative costs at a minimum.⁶

Against this background, increasing the effectiveness of VAT collection, as planned by the government, should be a priority. The potential gains from improvements in this area are large: hypothetically considering a decrease in the VAT gap to the EU25 average would increase revenues by more than 1% of GDP. By comparison, the temporary 1 percentage point increase in the standard VAT rate that will be introduced in 2011, while leaving the VAT gap constant, is estimated to yield an increase in revenues of 0.3% of GDP.

Unifying the collection of taxes and social security contributions

While most of the OECD countries with separate social security regimes administer the collection of social security contributions through a separate social security agency, rather than through the main tax revenue body, some countries (*e.g.* Ireland, Italy, Sweden and the United Kingdom) have converted to an integrated collection system (OECD, 2009b; Barrand *et al.*, 2004). The economic rationale is based on synergies that could be gained by merging separate organisations, which have similar core processes and competencies related to revenue collection, thus leading to a more efficient use of resources and lowering administrative costs for the government and compliance costs for employers (Barrand *et al.*, 2004). In addition, such a reform may improve the monitoring of tax compliance, thus countering fraud and increasing the revenue base. Given that administrative costs of tax collection relative to net revenue collections in Slovakia are the highest among OECD countries, reforms to that end should be envisaged (OECD, 2009b).⁷

The Slovak authorities intend to increase the efficiency of the revenue system by moving to integrated revenue collection under the so-called UNITAS project. This was launched in 2008 and is expected to be fully implemented by 2014. The first stage, UNITAS I, is to merge the existing tax and customs administrations and to establish a new system for the management and organisation of the collection of government revenues *via* a newly founded organisation (the Financial Administration of the Slovak Republic). Along with organisational changes, an optimisation of specific processes is also planned. In particular, it will involve the concentration and unification of some processes at a central level. This phase is intended to be implemented by 2013.

UNITAS II will unify the collection of taxes, customs and social contributions (including health contributions) into one point of collection. As a prerequisite, the unification of the

assessment bases of social contributions and personal income tax is envisaged, which could facilitate the introduction of a single tax and contribution return statement. Furthermore, the introduction of a uniform identifier of persons and interconnection of information systems of general government entities is planned. The detailed concept of the second stage is to be prepared and approved by the Slovak government by December 2010. The Ministry of Finance estimates that over the period of 2008-17 the total benefits of UNITAS I will exceed the costs by approximately EUR 1.5 bn (2.4% of GDP) on a cumulative basis, accruing both to taxpayers and to the general government (Table 2.2).⁸ The plans for a unified collection scheme are highly welcome and should be implemented in full and as soon as possible. In order to prevent delays, the government should proceed quickly with approving the second stage of the reform (UNITAS II).

Table 2.2. **Cumulative impact of the UNITAS I revenue integration reform**

(EUR million)	2008-12	2008-13	2008-17
Benefits	280	601	1 892
Costs	190	250	409
Difference	90	352	1 484

Note: The estimated costs and benefits rest on the following assumptions: Reduction of the administrative burden of taxpayers by at least 25%, increase in the share of documents delivered to the tax administration office electronically from 12% to at least 50%, reduction of visits to the tax administration office by 50% by 2013, a gradual reduction of employees in tax administration amounting to 20% by 2014, overall wage increases of employees in the tax administration amounting to 20% by 2012 and 3% annual increases beyond that period, and a reduction in the size of the shadow economy by 10% after the implementation of the reform.

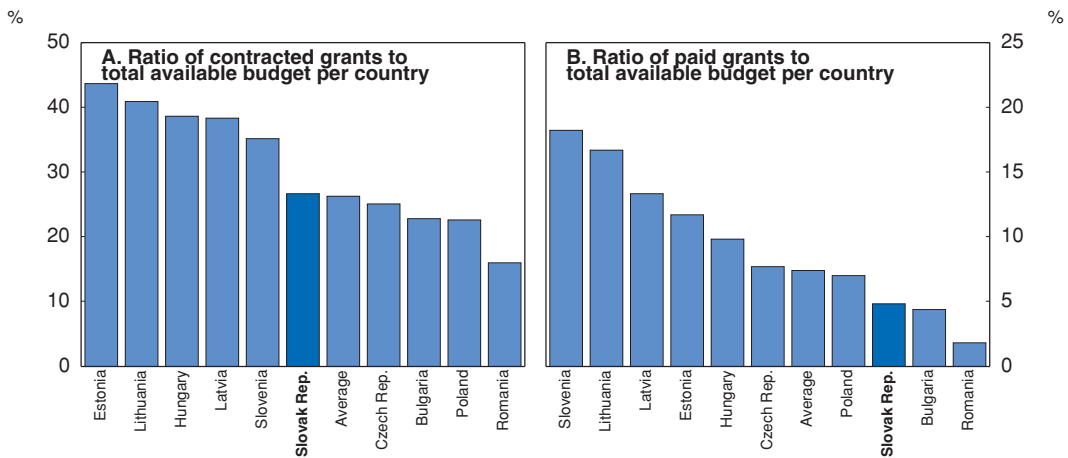
Source: Ministry of Finance (2008).

Improving the absorption of EU funds


The use of EU funds, which the EU allocates as part of its regional policy to reduce regional disparities, is an essential factor for development. For the implementation period 2007-13, the available budget for Slovakia amounts to close to 3% of GDP per year, including co-financing from the state budget, which in the case of Slovakia amounts to about 10% of the total.⁹ During times of fiscal consolidation, EU funds are a particularly important instrument for limiting the adverse effects on growth. In this regard, it is unfortunate that Slovakia lags behind in the absorption of these funds in relation to other CEE countries. The share of contracted grants (the amount for which the contract has been signed by the competent authority and the final beneficiary) relative to the total available budget is comparable to other CEE countries (Figure 2.2, Panel A).¹⁰ By contrast, paid grants (amount of grants, including advance payments, disbursed to the final beneficiaries by the paying agency) relative to the total available budget (absorption) is much lower than in those other countries (Figure 2.2, Panel B) (KPMG, 2010).¹¹

Low absorption of EU funds is a concern and while little is known about the reasons for this outcome, a number of factors could play a role. First, the low share of paid grants could reflect a different planned distribution of drawing EU funds (*i.e.* the use is not equally distributed over time), as in some countries the plans foresee that the bulk of the money will be spent in the later years of the programme period. Second, the pace of realisation of contracted projects may be slow. Third, contracted projects could be of low quality or selection procedures may lack transparency, leading to projects not passing audits or other control mechanisms at the certification authority (the Ministry of Finance). In Slovakia, there is some evidence that the quality and transparency of the selection process of certain

Figure 2.2. Drawing of EU funds in eastern European countries



Source: KPMG (2010), *EU Funds in Central and Eastern Europe*, Progress Report 2007-09.

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projects (social enterprises, procurement of certain goods and services at the Ministry of Construction and Regional Development) has been low, so that, despite being contracted projects, they did not pass control mechanisms at the national level. Fourth, the payment structure may be different among countries with some countries relying more on advance payments than others. Investigating further what is driving the low absorption of EU funds should be a priority for the government going forward.

Even though the overall share of contracted grants relative to the available budget looks more favourable, major operational programmes are lagging behind (Table 2.3). This may reflect that operational programmes (e.g. transport and environment) involve major projects which need a longer lead-time for their preparation so that their drawdown will be concentrated in the remaining part of the programme period. This explanation is consistent with the initial allocation of EU funds within the National Strategic Reference Framework. Transport and Environment are the only operational programmes which implicitly assume that the drawing of EU funds will continuously rise over the programme period, being concentrated mainly in 2010-13 (Table 2.4). At the same time, in a CEE-wide comparison, Slovakia is lagging behind in drawing EU funds related to the environment, while drawing funds in transport is roughly at the CEE average.

The underlying reasons for the low absorption should be investigated. Notwithstanding the need for co-financing, consideration should be given to accelerating the projects in order to get the maximum impact during the time of fiscal consolidation, thus damping the adverse growth effects of consolidation. Submission requirements for domestically funded capital projects should be transparent and simple and co-operation between ministries should be fostered in order to facilitate the certification process.

Improving efficiency of healthcare spending

Healthcare is one of the most important expenditure areas in Slovakia: public sector spending on health accounts for one-fifth of total expenditures and is expected to rise sharply over the next decades, in part because of rapid population ageing. Under a no-policy change scenario, the European Commission expects public health spending as a share of GDP to increase by 2.3 percentage points from its 2007 level by 2060.¹² This

Table 2.3. **Drawing of EU funds in Slovakia**

	Available budget 2007-13	Contracted grants 2007-09	Paid grants 2007-09	Contracted ratio	Absorption
	(mil. EUR)	(mil. EUR)	(mil. EUR)	(%)	(%)
I. National Strategic Reference Framework	13 392	3 312	613	25	5
Employment and Social Inclusion	1 135	479	88	42	8
Competitiveness and Economic Growth	908	381	50	42	6
Health	294	125	15	42	5
Education	727	232	6	32	1
Transport	3 705	869	246	23	7
Research and Development	1 423	327	39	23	3
Environment	2 118	387	38	18	2
Informatisation of Society	1 168	127	5	11	0
Regional	1 700	316	103	19	6
Bratislava Region	99	10	6	10	6
Technical Assistance	115	61	17	53	15
II. National Strategic Rural Development Plan	1 297	593	92	46	7
III. National Strategic Plan of Fisheries	19	4	1	23	3
Total	14 707	3 910	706	27	5

Source: KPMG (2010), *EU Funds in Central and Eastern Europe, Progress Report 2007-09*.

Table 2.4. **EU funds allocation in Slovakia over time (% shares in total allocation)**

	2007	2008	2009	2010	2011	2012	2013	2007-13
I. National Strategic Reference Framework	11.2	12.1	13.2	14.3	15.4	16.5	17.3	100
Employment and Social Inclusion	14.2	13.8	13.3	12.3	13.3	14.6	18.4	100
Competitiveness and Economic Growth	14.2	13.8	13.3	12.3	13.2	14.6	18.5	100
Health	14.2	13.8	13.3	12.3	13.2	14.6	18.5	100
Education	14.2	13.8	13.3	12.3	13.3	14.6	18.4	100
Transport	7.8	10.2	13.0	16.6	17.8	18.6	16.0	100
Research and Development	14.2	13.8	13.3	12.3	13.2	14.6	18.5	100
Environment	6.5	9.5	12.9	17.5	18.8	19.4	15.5	100
Informatisation of Society	14.2	13.8	13.3	12.3	13.2	14.6	18.5	100
Regional	14.2	13.8	13.3	12.3	13.2	14.6	18.5	100
Bratislava Region	13.5	13.7	14.0	14.3	14.6	14.9	15.1	100
Technical Assistance	14.2	13.8	13.3	12.3	13.2	14.6	18.5	100
II. National Strategic Rural Development Plan	15.4	14.5	13.6	13.0	13.4	14.0	16.1	100
III. National Strategic Plan of Fisheries	14.6	14.0	13.3	12.1	13.0	14.4	18.6	100
Total	11.8	12.5	13.2	14.1	15.1	16.1	17.1	100

Note: The table shows the relative planned breakdown of allocation of EU funds into each year of the programme period in Slovakia. These figures are not fully comparable with the data on drawdown presented before as they represent commitments that can be drawn in a period of $n + 2$ or $n + 3$ years (depending on the type of fund and the year of programme period), n meaning the year of commitment.

Source: National Strategic Reference Framework of the Slovak Republic.

expected increase is one of the highest among the EU27 and compares with an average expected rise in this country group of 1.7 percentage points (European Commission, 2009). Among OECD countries, the increase is expected to be the second-highest after Korea (Oliveira Martins and De la Maisonnewe, 2006).

Aware of this issue, policymakers have implemented ambitious reforms of the healthcare system in the past, notably in 2004, which have profoundly changed its structure from a command-and-control system to a market system, notably at the insurance level (Box 2.1). Some of these reforms have been rolled back since 2006 – for

Box 2.1. The Slovak health care system and the 2004 reform

The 2004 healthcare reform

Since 1993, the Slovak health care system has consisted of a mandatory social health insurance system with multiple non-profit insurers (Colombo and Tapay, 2004). In 2004, Slovakia implemented a major healthcare reform as the deficit in the social security funds had increased since the mid-1990s to reach around 0.8% of GDP by 2002 (this led to the accumulation of debt at the level of healthcare providers as health insurances delayed payments).¹ The main aim was to replace the state-driven health system with a more market-oriented one and the main contents of this reform were:

- Health insurance funds were transformed from non-profit institutions into joint stock companies and two types of health insurance were permitted: mandatory basic coverage and voluntary private cover (for over-the-basic services). User fees for doctor visits, emergency room visits, drug prescriptions and hospital stays were also introduced.
- On the provider level, several hospitals (mainly small and medium sized ones) were transformed from self-managed government institutions into not-for-profit organisations in the ownership of cities and regional governments (while large hospitals remained the property of the state). Health insurance funds were instructed to implement structured contracts with in- and outpatient providers.
- The benefit package was reworked; some treatments were de-listed from the package of benefits reimbursed by compulsory health insurance and the basic benefit package was changed so as to rely on a positive list encompassing all preventive activities, diagnostic activities and all treatments for defined diagnosis.

Changes since 2006 and the current status quo

Some of these measures introduced by the 2004 reform were modified again after a change in government in 2006. This included the cancellation of the fees for doctor visits and a lowering of the fees for drug prescriptions as well as tighter regulation of health insurance funds. Today, the main features of the health care system are as follows:

Coverage and entitlement

All Slovak citizens are covered by compulsory public health insurance. The basic insurance package entitles everyone to free healthcare with the exception of only a few treatments (e.g. cosmetic surgery), and partial payments for pharmaceuticals and selected healthcare related services (e.g. emergency room visits). Prices of pharmaceuticals are regulated by the Health Ministry which bases the prices on international referencing which compares the lowest prices for the same or similar drugs across EU countries.

Insurance market

Citizens have a choice for the compulsory health insurance package between three insurers. They are the publicly owned VSZP and the privately owned ZP *Dovera* and ZP *Union*, which had market shares respectively of 69%, 25%, and 6% in 2009. Insurers are required to accept any applicant. For the basic insurance package, insurers have no influence over the benefit basket, level of coverage or premiums and in 2009, as much as 95% of insurance contributions were redistributed according to a risk-equalisation system based on age, gender and economic activity of the insurer.² An over-the-basic insurance market does not exist, even though private health insurance is allowed (Verhoeven et al., 2007).

Box 2.1. The Slovak health care system and the 2004 reform (cont.)**Sources of financing**

Insurance for employees is financed from health insurance contributions, which amount to 14% (10% are paid by employers and 4% by employees) of gross wages, up to a ceiling of three times the average wage of the penultimate year (in 2010 the ceiling is EUR 2 169, three times the 2008 average wage of EUR 723).³ The minimum contribution is based on the minimum wage. Self-employed pay contributions themselves with the minimum contribution base amounting to 44.2% of the average wage. Insurance for the majority of non-working persons (over half of the population) including children, unemployed and pensioners is paid for by the government at a rate of 4% (the assessment base is the average wage of the penultimate year). The rate for 2010 is 4.78%, for 2011 it was lowered to 4.32%. Out-of-pocket (OOP) payments are relatively high, amounting to 26.2% of total expenditures, the fourth highest in the OECD. Anecdotal evidence suggests that informal payments (which may partly be included in measured OOP payments) play an important role in affecting access to healthcare and health inequality (Murthy and Mossialos, 2003).

Market for provision

Users can choose between different providers of health care (in- and out-patient care) with gate-keeping restrictions for out-patient care, particularly on access to specialists. Insurers are allowed to select healthcare providers, and to negotiate contracts with physicians and individual hospitals. However, in 2007, the government defined a network of minimal health services providers which insurers have to sign contracts with. These include all GPs, a minimum number of specialists and all state-owned hospitals.

1. The debt accumulation of the social security funds was apparently also fuelled by delayed contribution payments by employers as well as by the government for the inactive population.
2. Risk-equalisation schemes attempt to adjust for the different risk structures of members in different health insurance funds to avoid that insurers compete for high-income members with low morbidity risk (cream skinning). The aim is for competition to lead to increased cost-effectiveness among insurers rather than risk selection.
3. Contributions are paid monthly. An annual clearing payment compares the total annual contributions paid with the annual income ceiling, i.e. employees who receive a high income in one month that exceeds the ceiling but otherwise remain below the ceiling may have to pay an additional contribution. The contribution rate for the severely disabled amounts to 7%.
4. Diagnosis related group systems relate types of patients treated to the resources they consume with the aim of determining the reimbursement from medical insurance according to a diagnosis on a prospective basis.

example, competition in the insurance market has been curtailed and some co-payments have been abolished. Nevertheless, their potential impact on health outcomes and on costs may not yet have been fully realized. In any case, even after the reforms, significant challenges remain to improve the efficiency of the healthcare system.

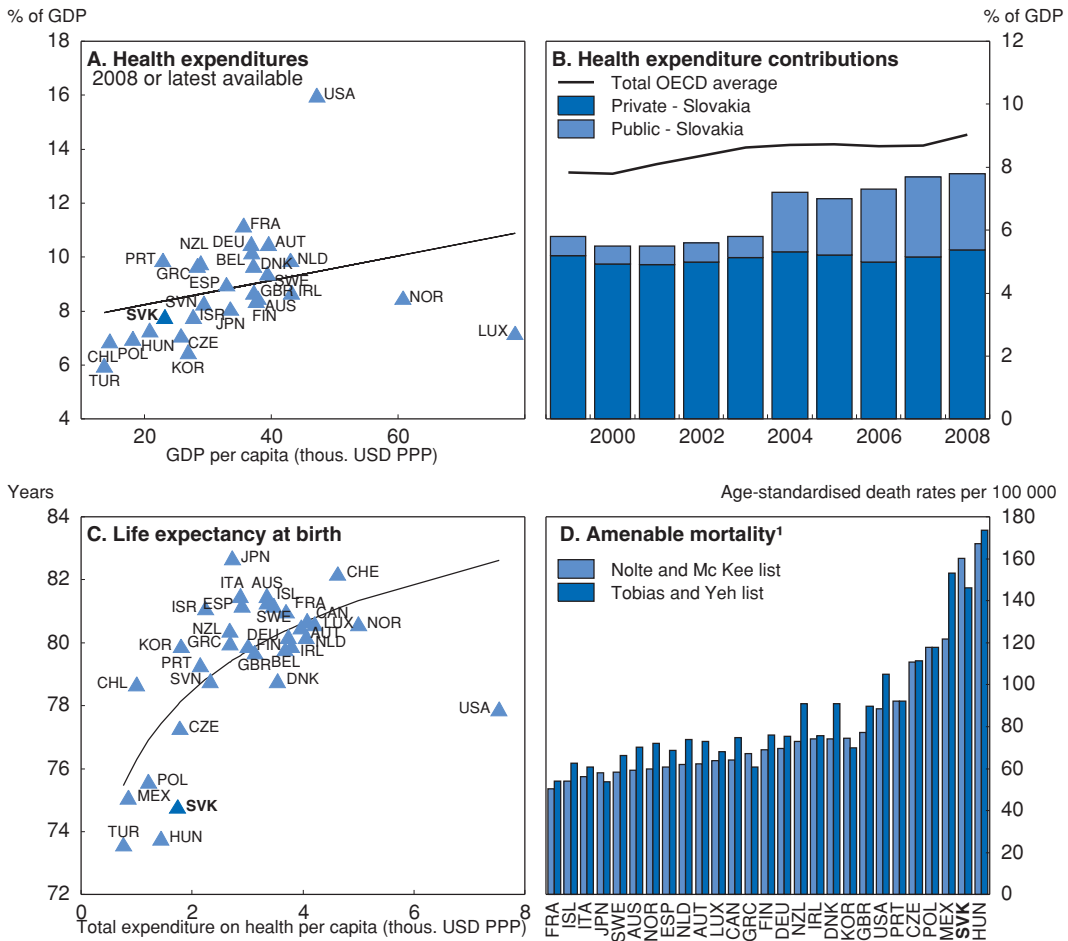
Expenditure levels are low but rising fast...

At 7.4% of GDP (in 2008), total expenditure on health in Slovakia is below the OECD average of around 8½ per cent.¹³ The lower level may be explained by lower GDP *per capita* (Figure 2.3, Panel A). However, expenditures are rising very fast, even compared with countries that have a similar GDP *per capita* level; over the period 2000-07, expenditures increased by 2.2% of GDP, compared with growth of less than 1% in Poland, Hungary and the Czech Republic and an OECD average of 1.2%. This high spending growth in Slovakia reflects primarily a steep increase in spending since the major health reform in 2004.

... while outcomes lag behind

Despite the rapid growth in expenditures, health outcomes have not improved as much as in many other OECD economies, although outcome improvements tend to show up with some lag. Over the period 1995-2007, life expectancy increased by less than two years compared with an OECD average of more than three years. Amenable mortality (those deaths that are potentially preventable by timely and effective medical care) is the second-highest in the OECD (Figure 2.3, Panel D). While the health status of a population is affected by several factors other than health spending (such as education, pollution and lifestyle), estimates by Joumard *et al.* (2010a) suggest that health spending is the single most important factor explaining differences across countries.¹⁴ In addition, health inequality, measured as the standard deviation in mortality rates for the population older than 10, is higher in Slovakia than in a number

Figure 2.3. Health status and health care spending



1. Amenable mortality lists specify both causes of death and age-specific limits for each cause. Various lists exist. Results shown here are based on those developed by Nolte and Mc Kee (2008) and by Tobias and Yeh (2009).

Source: OECD Health Database and Joumard *et al.* (2010), "Health care systems – Efficiency and institutions", *Economics Department Working Papers*, No. 769.

of OECD countries (Joumard *et al.*, 2010a). Among CEE countries, inequalities are much higher in Hungary and Poland but slightly lower in the Czech Republic compared with Slovakia. Overall, the Slovak public seems less happy with the available health care than citizens in other countries.¹⁵

The weak efficiency of Slovak health spending is even more worrying as health expenditures usually have decreasing returns to scale; thus, a country which starts from a lower level of expenditures should normally experience more rapid improvements in outcomes than a more advanced economy. Given this background, there seems to be significant room for improvement in health outcomes in Slovakia given the level of health spending. The issue is whether money is spent efficiently, not whether more money should be spent (which is a societal preference). Even though such estimates are surrounded by considerable uncertainty, results by Joumard *et al.* (2010a) indicate that health reforms which generate a better use of the current money expended in line with best performers, could increase life expectancy in Slovakia by several years. Alternatively, the same outcomes could be achieved with significantly lower spending. For example, the same gains in life expectancy, that were reached over the period 1997-2007, could be realized in the future by a more efficient system at costs which are estimated to be more than 2% of GDP lower (Joumard *et al.*, 2010b). This analysis is based on comparisons of policies in a grouping of countries that share broadly similar institutional features, given the difficulties of comparing significantly different institutional arrangements (Figure 2.4). Slovakia is in a group with Germany, Netherlands and Switzerland. This group is characterized by extensive market mechanisms to regulate basic insurance coverage, a large role for private providers, mostly fee-for-service payment, a large choice among providers, gate-keeping and little reliance on prices paid by third-party payers to control public spending growth.

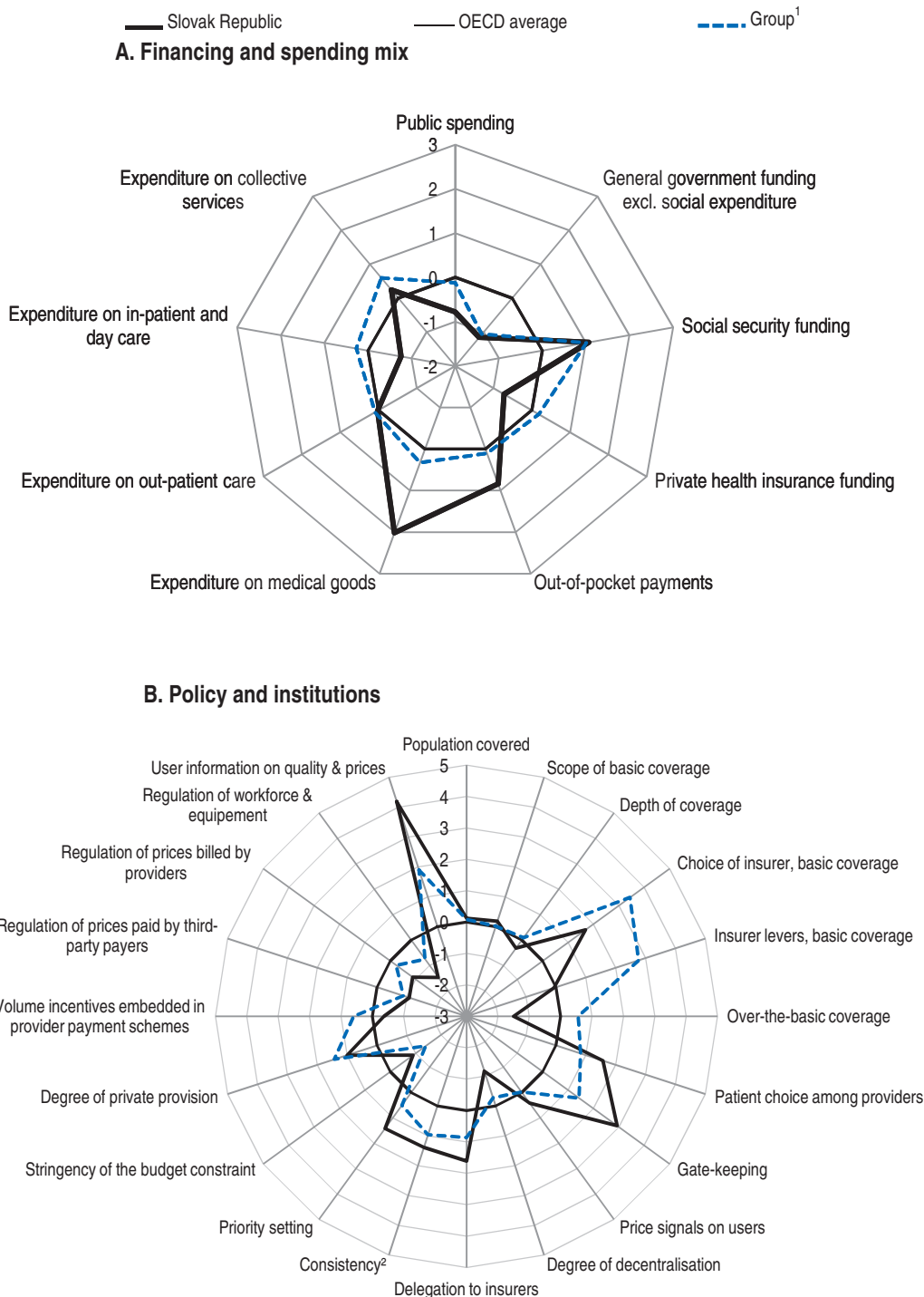
The main areas policy reform should focus on are:

- The increase in spending is driven by private expenditures as out-of-pocket health spending has risen to very high levels. This has led to increased inequality, as low-income households are most affected, but is not reflected in better health outcomes.
- Inefficiencies at the provider level are large. The state-owned hospitals have soft budgetary constraints and generate significant debts. In addition, many health professionals migrate abroad, not least due to their low pay, notably in the hospital sector.
- Expenditures on drugs are high, potentially indicating that measures to curb drug consumption are not used sufficiently effectively.
- Competition among health insurance funds is comparatively weak due to strict regulation of health insurance funds and high and growing market concentration, suggesting that not all the benefits of the institutional set-up that was chosen for the Slovak healthcare system are used.

Dealing with the rise in out-of-pocket payments...

The overall increase in expenditures is almost solely due to an increase in private expenditures, which rose from 0.7% of GDP in 2003 to around 2½ per cent of GDP in 2008; by contrast, public expenditures remained almost unchanged at around 5% of GDP

Figure 2.4. **Health care indicators in Slovakia compared to other countries**



Note: In both panels, data points outside the average circle indicate that the level of the variable for the group or the country under scrutiny is higher than for the OECD average. In Panel A, data represent the deviation from the OECD average and are expressed in number of standard deviations. In Panel B, data shown are simple deviations from the OECD average.

1. Germany, Netherlands, Slovak Republic and Switzerland.

2. Consistency in responsibility assignment across levels of government.

Source: OECD Health Data 2010 and Jourard et al. (2010), "Health care systems – Efficiency and institutions", Economics Department Working Papers, No. 769.

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(Table 2.5). Private expenditures as a share of GDP are now around the OECD average while public expenditures are still among the lowest. The rise in private spending reflects sharply increasing expenditures for personal health, both for medical services (in- and out-patient care) and to a smaller extent for pharmaceuticals. As financing through private insurance is non-existent, these expenditures are cash out-of-pocket payments (OOP) by households that affected households in the lowest income quintiles the most (Kiss, 2007).

Out-of-pocket payments have more than tripled since 2002 and now amount to 2% of GDP, compared with 1.6% of GDP in the average OECD country. Few details on the exact composition of these payments are known, notably to what extent they include informal payments. However, since they rose sharply around 2004, the increase probably relates to the health reform measures taken then. OOP expenditures on pharmaceuticals increased due to the introduction of equal reimbursement for chemically identical substances and fixed co-payments for all drugs while previously some drugs (such as antibiotics) were free of charge (Kiss, 2007). In addition, the categorization of pharmaceuticals was adjusted and the portion of the costs paid by patients for partially reimbursed drugs was fixed, helping to explain the rise by 0.3 percentage points of private expenditure on pharmaceuticals since 2002. Another contributing factor seems to be an increase in expenditures on medical services, notably on out-patient care. But also the share of OOP in inpatient curative care as well as in basic medical and diagnostic services has risen to among the highest in the OECD (Paris et al., 2010). A range of measures may be behind this development. First, a fee per practitioner visit and per drug prescription as well as a fee per night in hospital was introduced. However, as these fees were set at very low levels, their introduction was more of symbolic significance and the number of doctor visits declined only marginally from 13 *per capita* in 2002 to 11.2 in 2007 (still close to twice the OECD average).¹⁶ Second, outpatient physicians were allowed to charge patients for skipping the queues in waiting rooms and for other extra services from 2005. The latter was part of the spirit of the reform to formalise informal payments and make hidden phenomena,

Table 2.5. Evolution of current healthcare expenditures in Slovakia

	% of GDP							
	2002	2003	2004	2005	2006	2007	2008	OECD 2008
Total current health expenditures	5.6	5.6	6.6	6.7	7.0	7.4	7.4	8.6
... public	5.0	4.9	5.1	5.1	4.9	5.1	5.3	6.3
... on medical services	2.9	2.7	2.8	2.9	2.7	3.0	3.2	4.9
... in-patient	2.0	1.8	1.7	1.9	1.2	1.4	1.4	2.7
... out-patient	0.9	0.9	1.2	1.0	1.4	1.6	1.8	2.1
... on medical goods	1.9	2.0	1.9	1.8	1.8	1.7	1.7	1.0
... private	0.6	0.7	1.5	1.7	2.1	2.3	2.1	2.3
... on medical services	0.1	0.2	0.5	0.6	0.9	0.9	1.0	1.4
... in-patient			0.0	0.0	0.3	0.3	0.3	0.5
... out-patient			0.5	0.5	0.7	0.7	0.7	1.0
... on medical goods	0.5	0.5	0.9	1.0	1.0	1.1	1.1	0.8
... on pharmaceuticals	0.3	0.4	0.5	0.6	0.6	0.7	0.6	0.7
... on therapeutic appliances	0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.2
<i>Memorandum: out-of-pocket payments</i>	0.6	0.7	1.4	1.6	1.9	2.0	2.0	1.6

Note: Current health expenditures equal total expenditures minus investment. OECD 2008 refers to the un-weighted OECD average for 2008. Private spending on medical services comprises in-patient (including day care) and out-patient expenditures (including expenditures on home health care and ancillary services (such as laboratory, diagnosis imaging and patient transport). Therapeutic appliances comprise a wide range of medical durables, such as glasses, hearing aids or wheelchairs.

Source: OECD Health Data 2010.

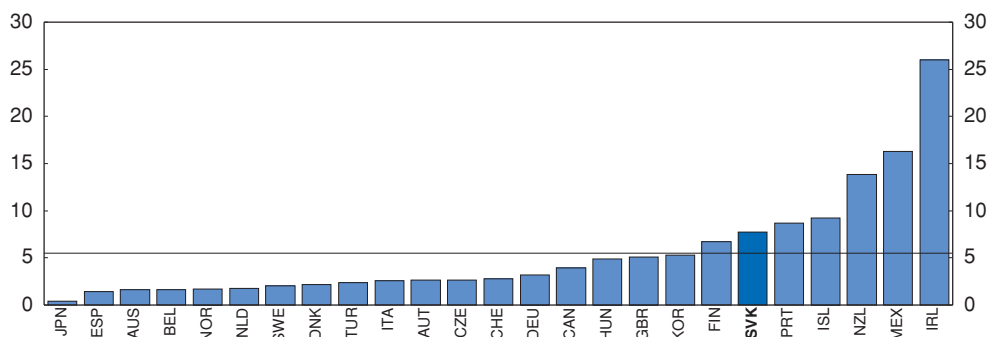
such as waiting times, more visible. Under-the-table payments (which may be widespread as anecdotal evidence suggests [Murthy and Mossialos, 2003]) would be substituted by open queues, transparent fees and open rationing as a mechanism to equilibrate supply and demand.¹⁷ Third, insured persons were forced to see the dentist at least once a calendar year; otherwise they would not be reimbursed for dental services in the following year (in this case they would be obliged to pay for them out-of-pocket).

In an effort to address the rising OOP expenditures, a number of changes to the reforms were enacted in 2006. In particular, some of the fees for healthcare services were abolished again, those for drug prescriptions were reduced and the VAT rate for drugs was lowered from 19% to 10%; but patients still co-pay for pharmaceuticals. These measures did not reverse the trend of rising OOP expenditures, suggesting that the payments to healthcare providers for extra services account for a large or perhaps rising, share of the spending increase (Table 2.5). In fact, even though data on the breakdown of OOP are only available for the years 2004 and 2005, in these years, cost-sharing accounted for only a negligible amount of it. In contrast to many other OECD countries (16 out of 29 OECD countries, including the Czech Republic and Hungary), there is no upper limit for OOPs per household income. Given the extent of OOP payments in Slovakia, an upper limit for OOP payments in terms of annual individual or household income should be introduced.

... and the inefficiencies at the provider level


The organisation of healthcare provision also needs to become more efficient. Rankings of providers as published by health insurers show big differences in the quality of care between various providers. Part of this may be due to a lack of co-ordination in primary care as clinical guidelines promoting disease management are absent, often leading to unnecessary induced care. For example, the average number of doctor visits *per capita* in Slovakia is around 12 per year, one of the highest among OECD countries. Furthermore, incentives for General Practitioners (GPs) to work in Slovakia are low as evidenced by the emigration of doctors and nurses which is more prevalent in Slovakia than in many other OECD countries. The number of health personnel working abroad amounts to around 8% of the domestic workforce in the health and social work sector, against the (un-weighted) OECD average of around 6% (Figure 2.5). As emigration often concerns younger doctors, the age

Figure 2.5. **Health care personnel working abroad**
% of all employed in health sector in the country of origin



Note: The figure shows the origin of migrant employees in the health and social sectors as a share of employees in that sector in their home country. For example, employees of Slovak origin working in the health and social sectors in OECD countries (outside Slovakia) account for 7.7% of employees working in this sector in Slovakia.

Source: OECD, Database on Immigrants in OECD countries (DIOC) and Labour Force Statistics Database.

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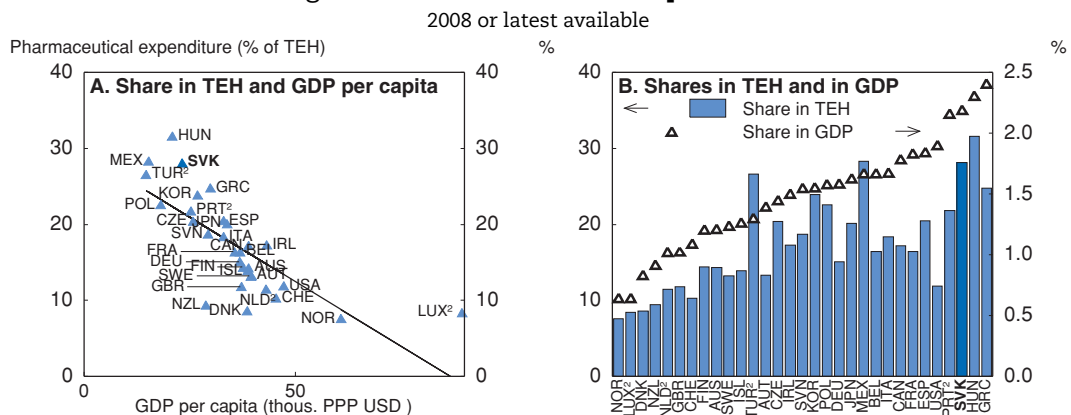
structure of GPs in Slovakia is skewed towards older cohorts. The countries with the largest shares of Slovak employees in health care are the Czech Republic, Austria, Hungary and the United Kingdom. Partly, this may reflect low salaries, notably of hospital nurses, whose income relative to the average wage is one of the lowest among OECD countries. It may also be due to the remuneration structure of doctors, which is based on capitation only. The way physicians are compensated should thus be reviewed, possibly complementing capitation with a fee-for-service component, as it is done in many other OECD countries (Paris *et al.*, 2010).¹⁸ Simoens and Giuffrida (2004) argue that such a combination of payment methods may produce a more desirable mix of incentives than relying on just one.

Furthermore, performance in the hospital sector could be improved, which accounts for around one-third of all health expenditures. The lack of efficiency concerns notably the state-owned institutions which operate under a soft budget constraint, lack corporate governance rules and are heavily indebted (Verhoeven *et al.* (2007)). This has been a long-standing problem: already in 2004/05 the hospital sector was heavily indebted and the government took over debt in the amount of EUR 640 million (1% of GDP). Although it was planned in the 2004 reform to transform all hospitals into joint stock companies, only five of them were transformed before the process was stopped in 2006. Performance in the hospital sector remains weak and their debt levels have risen again to around ¼ of GDP. The benefits and risks of restructuring the hospital sector by transforming the state-owned institutions into joint stock companies should be further explored. Furthermore, implementing a system of disease-related groups would motivate cost-effective treatment.

Lowering expenditures on pharmaceuticals

Expenditures on pharmaceuticals account for 28% of all health expenditures, the second-highest in the OECD (the highest is Hungary; the OECD average is 17%). In relation to GDP, Slovakia is also among the highest (Figure 2.6, Panel B). One important factor behind this outcome is a relative price level effect: the difference between the price level of pharmaceutical goods (a traded good) and the domestic price level of health expenditures (a non-traded good) is higher in a catch-up country like Slovakia. This may explain why countries with a lower level of GDP *per capita* have a higher share of pharmaceutical spending in total health expenditures (Figure 2.6, Panel A).¹⁹ In addition, the relatively low

Figure 2.6. **Pharmaceutical expenditure**



1. TEH = total expenditure on health.

2. Pharmaceutical expenditure: 2006 for Portugal, 2005 for Luxembourg, 2002 for Netherlands and 2000 for Turkey.

Source: OECD, Health Database.

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salary of health care professionals compared to other professions in Slovakia contributes to a low share of hospital expenditure, helping to explain the low proportion of non-pharmaceutical spending.²⁰ According to the Slovak Ministry of Finance, the relative price level effect may account for around one-third of the share of pharmaceuticals in total health expenditures.²¹

In terms of price levels, pharmaceutical products seem to be broadly in line with comparison countries (OECD, 2008) although there is some evidence for over-pricing in selected products in the recent past (Kaló et al., 2008). According to estimates by the Slovak Ministry of Finance, the effect of overpriced drugs accounts for 3 percentage points of the higher share of pharmaceutical spending in total health spending. In terms of volumes, drug consumption is above the OECD average for many drug categories. This may be related to the relatively poor health status of the population. For example, mortality rates for ischemic heart disease and cancer are among the highest in the OECD and the perceived health status of Slovaks is the second-worst among OECD countries.²²

Co-payments for pharmaceuticals are low

However, growth of drug volumes is also above average, suggesting that consumption is likely to reflect also other factors than health status. Between 2000 and 2008, expenditures on medical goods as a share of GDP rose by 0.3 percentage point, almost twice the OECD average. One factor may be a lower level of co-payments for reimbursed drugs which encourages spending on higher priced products relative to other countries and/or gives incentives to consume more drugs (Kaló et al., 2008). Private spending on pharmaceuticals and other medical non-durables at 140 USD PPP is well below the OECD average of 211 USD PPP.²³ The share of private expenditures in overall pharmaceutical spending at 27% is one of the lowest among OECD countries (OECD average is 45%). In order to increase the price awareness of consumers, the level of co-payments for partially-reimbursed pharmaceuticals should be raised. While this may contribute to increasing the level of OOP payments, introducing a cap on such payments as recommended before would limit the underlying adverse effects.

Generic substitution should be encouraged further

Reimbursement of drugs is based on categorization whereby the Ministry of Health (assisted by an advisory body called the Categorisation Committee) determines which drugs are reimbursed and at what rate (Kaló et al., 2008). In general, the amount reimbursed is oriented at the cheapest available generic drug. For innovative products, the maximum retail price that is reimbursed is based on a submission by the manufacturer (which is usually based on other European prices in case the drug has been introduced there; Box 2.2). For all other (non-generic or more expensive generics) drugs, patients have to pay the difference, giving them an incentive to request prescription of generics from the physician or substitution by the pharmacist whenever possible (even though the low level of co-payments somewhat limits the incentive).²⁴ Overall, the use of generic drugs is stronger in Slovakia than in many other European countries, but greater savings from generic drug utilisation are possible by further raising the incentives for generic substitution.²⁵ For example, in practice the incentive for using generic drugs is circumvented at the level of the prescription. Often, doctors prescribe the more expensive drug, thus forcing pharmacists to provide the more expensive drug and patients to pay the co-payment.²⁶ In this regard, the government plan to require doctors to only prescribe the drug substance, thus leaving open the choice of specific drug to the patient, is a step in the

Box 2.2. Reference pricing in catch-up countries¹

International benchmarking to determine the (maximum) price of a pharmaceutical product (i.e. looking at the prices in comparator countries) is used in 24 OECD countries. If a pharmaceutical firm wants to introduce a new product in the retail pharmacy market in Slovakia, it has to submit an application indicating a proposed retail price as well as a request for determination of the reimbursement level to the Categorisation Committee (an advisory body for the Ministry of Health, comprising representatives from the Ministry of Health, the Slovak Medical Chamber and health insurance funds). In determining the price threshold for imported pharmaceuticals, reference is made to the ex-factory price in the remaining 26 European Union countries. The price threshold is defined as the maximum of 10% above the average of the six lowest prices (countries where a price has not (yet) been established are excluded).² Prices of all publicly reimbursed drugs are then checked semi-annually against this rule by a joint Ministry of Health/Ministry of Finance task force. Recently, the Ministry of Health proposed a law that would set the maximum price to the level of the second lowest price of a drug in the European Union.

This approach of international reference pricing is influencing the behaviour of manufacturers. This concerns in particular the ordering of launches in different countries, as international reference pricing is rarely repeated after the initial market-entry price determination. For example, they are more likely to launch products in high-price countries and delay or compromise launches in low-price countries in order to try to avoid lowering the market-entry floor. At the same time, given that the Ministry of Health allows a launch price that is 10% higher than the average of the three lowest-price reference countries, companies may choose to launch their product in Slovakia before the price determination in other low-price countries in order to keep the Slovak price higher than elsewhere. However, due to the fact that Slovakia reviews also the prices of drugs already on the market, it may limit the extent by which manufacturers can benefit from such strategies.

1. This box draws on Kaló *et al.* (2008) and OECD (2010b).

2. The 10% mark-up allowance is not used for hospital-only drugs.

right direction. As one element in its campaign to foster generic substitution, the Ministry of Health has set up an electronic calculator on their website that allows patients to search for the drug with the lowest co-payment. These efforts are welcome and should continue, for example by obliging pharmacists to always supply the cheapest generic drug. The savings by always dispensing the least expensive drug by the pharmacist are estimated to amount to around 35% of co-payments in Slovakia (Filko *et al.*, 2010). In addition to these changes, measures to increase transparency in pharmaceutical marketing and distribution and to reduce induced consumption of drugs should be introduced. Also, benefit-cost ratios of newly entering as well as already marketed substances should be reviewed using standard international methodology and inferior products should no longer be reimbursed.

Increasing competition in health insurance markets

The organisation of the Slovak health insurance system is based on a multiple insurance system with competition, funded primarily by social security contributions. Among the new EU member states, only the Czech Republic and the Slovak Republic have moved to such a system. It is akin to the (Bismarckian) system of other Western European countries, such as Germany, the Netherlands and Switzerland. However, the market is highly concentrated with only three funds providing primary health coverage – fewer than

in the other OECD countries that offer consumer choice of insurers (Paris *et al.*, 2010).²⁷ In addition, the levers for competition on the market for the basic primary coverage are much more limited. Therefore, the system does not benefit much from the main advantage of a plural model, namely higher satisfaction of consumer preferences through high competition, while being exposed to many of the disadvantages of such a system, such as higher administrative costs and potential for oligopolistic rents (Filko *et al.*, 2010).

Regulation of insurance funds should allow for some room for competition...

Competition in the insurance market has effectively stalled due to a number of regulations and increasing market concentration. While health insurance funds have to charge the same contribution rates (and 95% of all contributions are redistributed through a risk equalisation scheme), they are allowed to select and contract with providers. Thus, insurees may have an incentive to choose a certain insurance fund because it offers reimbursement for a particular provider. At the same time, the scope for such behaviour is limited by the fact that the government has issued a minimum network of providers for in- and out-patient providers with whom insurers have to contract. These include all General Practitioners (GPs), a minimum number of specialists and all publicly owned hospitals. While in principle insurance funds could compete on marketing strategies and customer service, the incentives to do so are very limited due a law the government passed in 2008 forcing health insurers to reinvest all future generated profits into healthcare provision (rather than paying dividends to their shareholders), effectively banning profit-making for health insurers.²⁸ In addition, the level of administrative costs was restricted to 3.5% of revenues, which provided an incentive for concentration-increasing consolidation of insurers, thus decreasing competition. Overall, it is of no surprise that competition under such circumstances is feeble.²⁹

The benefits of competition in insurance markets are still highly debated. Notably, it is not clear whether having a multi-payer system with competition is generally preferable to a single-payer system. However, given that Slovakia has opted for a system that favours competition, reforms within that system are needed to make it more coherent with countries with more efficient health spending. Thus, to increase competition in the insurance market and thereby raise efficiency and cost containment, the strong regulation of insurance funds should be streamlined. Insurance funds could be allowed to vary their contributions, maybe by combining tax financing with nominal insurance premia as in the Netherlands. Also, the profit ban should be lifted, selective contracting with providers should be allowed and any barriers to entry, such as the upper limit on administration costs of health insurance funds, should be reviewed. In addition, a split up and partial privatization of the dominant public insurance fund should be considered. At least, better performing companies should be allowed to refund some of the contributions back to insurees. However, in order for healthy competition to take place, a number of conditions need to be ensured.

... while improving the risk adjustment mechanism...

The risk adjustment mechanism is meant to provide a level playing field for health insurers thereby reducing the incentives for them to select lower-risk individuals.³⁰ Within such a mechanism, insurers receive risk-adjusted amounts for each insured individual that reflect their likely health expenditures. Risk-adjustment models that are mainly based, as in Slovakia, on demographic variables, can predict only about 5% of the variation in the expenditure of individuals. Models that in addition take health parameters directly into account, such as the Dutch system, can predict up to 22% of the variation (World Bank, 2009).

... and raising competition among providers

In 2009, quality indicators for healthcare providers have been collected and were published online. The aim is to increase transparency, thus allowing insurance funds to better choose providers and patients – who have the free choice among all providers – to choose doctors and hospitals. Such quality measurement is a critical ingredient into a functioning competitive market, but the list of quality indicators needs to be further improved, notably by regularly publishing the information set in full detail. Currently, it is planned that they are published only every three years and there is a lack of differentiation between providers. However, for this effort to fully bear fruit, competition among insurance companies needs to be increased, including by allowing them to more selectively contract with providers. Currently, the extensive minimum network of providers limits such choice and some redefinition of this network should be considered. Using the list, insured persons can make an informed decision about which insurance fund to choose, depending on which providers they have contracts with. *Defining the minimum network on the basis of the newly collected quality indicators should be considered.* As a consequence, competition among providers, which currently is very low in some segments, like hospitals (Filko et al., 2010), would be raised.

Box 2.3. Recommendations for increasing public sector efficiency

Raising the efficiency of tax administration

- Improve the performance of VAT collection, as planned by the government. For example, expand the number of verification activities and better enforce the collection of unpaid tax arrears.
- The plans for a unified collection scheme are highly welcome and should be implemented as soon as possible. In order to prevent delays, the government should proceed quickly with approving the second stage of the reform (UNITAS II).

Increasing the absorption of EU funds

- Increase the potential to absorb EU funds. The underlying reasons for the low absorption should be investigated. Consideration should be given to accelerate projects in order to get the maximum impact during the time of fiscal consolidation. Submission requirements for domestically funded capital projects should be transparent and simple, and co-operation between ministries should be fostered to facilitate the certification process.

Improving efficiency of the healthcare system

Dealing with high out-of-pocket payments and the low supply of general practitioners

- Given the extent of out-of-pocket payments in Slovakia, the authorities should consider introducing an upper limit for such payments in terms of annual household income.

Improve outcomes on the provider level

- Increase co-ordination in primary care by introducing clinical guidelines promoting disease management. Review the way doctors are compensated, possibly introducing a hybrid system of capitation and fee-for-service.
- Further explore the benefits and risks of restructuring the hospital sector through a transformation of state-owned institutions into joint stock companies. Implement a system of disease-related groups.

Box 2.3. Recommendations for increasing public sector efficiency (cont.)**Lowering pharmaceutical expenditures**

- Encourage physicians to prescribe the substance of a drug, thereby stimulating consumption of generics, as planned. Consider obliging pharmacists to always supply the cheapest generic drug.
- Consider raising the level of co-payments for partially-reimbursed pharmaceutical products.

Raise competition in insurance markets

- Increase competition among insurance funds by allowing the distribution of profits, lifting the strict upper level on administrative costs, allowing selective contracting with providers, and allowing contributions to vary. Consider splitting up or partially privatise the dominant public insurance fund.
- Improve the risk-equalisation formula by including health parameters.
- Further improve the list of quality indicators for healthcare providers and consider using the list to define the minimum network of providers with which insurers have to contract.

Notes

1. Afonso *et al.* (2009) use four different methodologies to estimate total public sector efficiency scores. In their composite PSE indicator, Slovakia ranks 11th, their input oriented Data Envelope Analysis (DEA) yields rank 20 and the output oriented DEA rank 12 while on their two-step correction estimate (correcting for non-discretionary factors such as trade openness), Slovakia ranks 9th.
2. This can be shown by decomposing the share of taxes on goods and services in total tax revenues into three factors: 1) the implicit tax rate on private consumption, 2) the weight of private consumption in GDP and 3) total tax revenues as a percentage of GDP (OECD, 2010a). The larger the first two factors are, the more reliant a country will be on consumption taxes. In contrast, the third factor works in the opposite direction: a higher overall tax burden tends to decrease the ratio of consumption taxes to total revenues through a denominator effect. The difference in the share of VAT in total revenues between Slovakia and the EU19 is almost solely due to the total tax revenues-to-GDP ratio, which is 9.8 percentage points lower in Slovakia.
3. The theoretical net liability is estimated by applying the existing legislative framework in the country, thus it can capture various exemptions in the system. The VAT gap does not capture only VAT frauds but also it might include legitimate tax avoidance measures and VAT not collected due to insolvencies arising as a result of business activity. In addition, the estimation of the VAT gap depends also on the accuracy and completeness of data used. The VAT gap is similar to the VAT revenue ratio which compares actual VAT revenues with the “theoretical” revenues that could be gained if all goods were taxed at the standard rate (i.e. the fewer the exemptions in the system, the closer the VAT revenue ratio should be to unity). However, the main difference is that the VAT gap takes into account reduced rates and zero-rating.
4. One example is the “Missing trader intra-EU fraud”. Typically, a fraudster registers for VAT in an EU country, purchases goods VAT-free from another EU member state, sells those goods at VAT-inclusive prices within the country, and then ceases operations and disappears without paying the VAT due. Another variant is “carousel fraud” where, instead of being sold within the importing country, goods are sold through a series of contrived transactions before being sold to a trader in another EU member state, who then sells the goods back to the importing country. This allows the fraudsters to carry out the fraud repeatedly using the same goods (Harrison and Krelove, 2005; Keen and Smith, 2007).
5. Verification is defined as comprising all activities typically undertaken by revenue bodies to check whether taxpayers have properly reported their tax liabilities (OECD, 2009b).

6. See Harrison and Krelove (2005), OECD (2009c) and Keen and Smith (2007) for an overview of measures to detect, prevent and investigate VAT fraud.
7. The revenue base for this ratio excludes social security contributions (as for all countries with separate collection of taxes and social security contributions) and, after 2004 excise taxes. However, even prior to 2004 the ratio was among the highest in the OECD.
8. Concerning the second stage of UNITAS, given the lack of existing details, no cost-benefit analysis is available.
9. The ratio of financing from EU funds differs per project and depends for example on the type of fund, EU member states' average *per capita* GDP in a defined period, and the objectives for which the funds are used.
10. See KPMG (2010). The analysis covers the following Central and Eastern European countries: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. Included here are structural funds (European Regional Development Fund, European Social Fund), the Cohesion Fund and rural development and fisheries funds (European Agriculture Fund for Rural Development and European Fisheries Fund). The European Agriculture Guarantee Fund (EAGF), Interreg programmes and other community initiatives are not covered. The EAGF is primarily used to provide direct payments to farmers, which are paid regularly and thus the nature of these funds differs from the other funds. Interreg programmes and other community initiatives form a relatively minor part of the EU budget. Their exclusion from the analysis should not distort the overall picture.
11. There is some evidence that performance has improved recently. Based on updated figures for Slovakia, drawdown of EU funds related to the National Strategic Reference Framework (i.e. total available funds minus rural development and fisheries funds) has improved over the first five months of 2010. The ratio of contracted grants to total available budget increased from 25% to 42% and the ratio of paid grants to total available budget increased from 5% to 7%. Funds related to the National Strategic Reference Framework form 85% of total EU funds available.
12. The projection methodology combines population projections with age-related expenditure profiles and developments of unit costs. The 2.3 percentage points increase in spending is the reference scenario which incorporates the changing population structure, a shift in age-related expenditure profiles (i.e. assuming that the number of years spent in bad health during a lifetime remains fairly constant, implying a shift in the age-related expenditure profile somewhat outwards) and assumes that unit costs evolve in line with GDP *per capita*, while income elasticity is assumed to converge from 1.1 to 1 by 2060. Taking into account the real convergence of the new EU member states (cost convergence scenario), i.e. assuming that the individual age-related expenditure profiles of catch-up countries will progressively converge to the average profiles of the EU15 by 2060, EC (2009) estimates that the increase in the Slovak Republic could amount to as much as 4.1 percentage point.
13. This includes spending on long-term care.
14. Their analysis is based on a panel estimation which explains life expectancy at birth by health spending, education, tobacco and alcohol consumption, diet, pollution and GDP. Slovakia was not in the estimation sample due to data constraints, such as a too short time series for healthcare spending.
15. When confronted with the question: "Do you have confidence in health care or medical systems in your country?" only 40% of respondents said there were satisfied, against an OECD average of 66% (Source: Gallup World Poll; Data refer to 2006 for Slovakia and up to 2009 for other OECD countries).
16. The user fee per practitioner visit and per drug prescription was set at 20 SKK (0.66 EUR) and the user fee per night in hospital was 50 SKK (1.66 EUR). The fee for prescribed drugs was lowered to 5 SKK (0.2 EUR) in October 2006. The co-payments for drugs rose from SKK 2.1 bn (0.16% of GDP) in 2003 to SKK 3.1 bn (0.21% of GDP) in 2005 (Kiss, 2007).
17. The data for OOP excluding cost-sharing is taken from Household Surveys. Thus, they may include also informal side payments although it is obviously not clear to what extent this is actually the case. While precise and up-to-date information on informal payments is not available for Slovakia, Murthy and Mossialos (2003) report (based on a World Bank/USAID survey in 1999) that 71% of GP visits and 59% of specialist visits involved informal payments. 60% of patients reported to have been required to make a payment for a service. However, according to Filko *et al.* (2010), the frequency of informal payments is gradually decreasing.
18. Under a capitation system, healthcare service providers (physicians) are paid a set amount for each enrolled person assigned to that physician or group of physicians, whether or not that person seeks care, per period of time. The amount of remuneration is based on the average expected

health care utilization of that patient (more remuneration for patients with significant medical history). Other factors considered include age, sex, type of employment, and geographical location, as these factors typically influence the cost of providing care.

19. However, the pharmaceutical price at the retail level also differs significantly across OECD countries with Slovakia accounting for 70% of the OECD average in 2005 (OECD, 2008). But the pharmaceutical price level and GDP *per capita* are only weakly correlated (OECD, 2008, Figure 1.10).
20. Nurses in Slovakia earn less than half the OECD average in USD PPP terms (15 290 vs. 38 103 in 2008) and their salary amounts to only 0.8% of the average wage compared with 1.1 in the average OECD country.
21. Another factor is that countries with higher *per capita* incomes tend to spend a lower share of total income on pharmaceuticals, contrary to the share they spend on health expenditure as a whole. This is consistent with the idea that pharmaceuticals are considered a necessity, for which spending will rise with income, but not as fast as income does. There is as well a tendency of poorer countries to under-report a portion of health expenditure consisting of informal or under-the-table payments to health care providers (OECD, 2008).
22. When asked about their health status, only 34.4% of Slovak adults perceive themselves to be in “good health”, compared with 69.1% in the average OECD country and 89.7% in New Zealand (OECD, 2009a).
23. The price sensitivity of patients with regard to the co-payments for drugs differs widely by geographical region with sensitivity being relatively small in the higher income regions like Bratislava and higher in the rural areas (Kaló, Docteur and Moïse, 2008).
24. There is no direct cost-sharing for hospital-only drugs – they are fully covered in hospital’s budget and some of the new drugs are reportedly only used in hospitals.
25. The generic market share (in 2006, the latest year for which numbers are available) in volumes was below 60%, down from 65% before, and lower than in Poland, Latvia, Denmark and the UK. In value terms, the share was stable around 37%, down from 49% in 2000 (see www.egagenerics.com/doc/fac-GxMktEur_2006.pdf).
26. However, according to the Act on Scope of Healthcare, physicians and pharmacists are required to inform patients about co-payments and options for less expensive drugs and are supposed to prescribe the cheapest alternative drug. However, there is no incentive to do the latter and doctors reportedly were given “do not substitute” stamps from pharmaceutical manufacturers (Kaló, Docteur and Moïse, 2008).
27. When the social health insurance system was introduced in 1994, 12 public non-profit insurers operated in the system. Until 2004, these were reduced to five as several of them closed down due to growing debts (Colombo and Tapay, 2004). In 2009, mergers of health insurers led to market consolidation and a decrease from five to three insurance providers.
28. In January 2009, Dutch shareholders of the health insurance company Doversa filed a lawsuit against this profit ban before the European Court of Justice, due to alleged breach of agreement on protection of investments. The sum they claim to have lost is EUR 500 million.
29. One indication for a lack of competition is the low switching rate of the insured population, which at around 3% is half the rate that prevails in Switzerland (Paris et al., 2010). The switching rate was 2.9% in 2007, 3.4% in 2008 and 2.4% in 2009. In 2006, when new insurance companies came to the market, the rate jumped temporarily to 11.8%. Switching insurance companies is possible once a year.
30. In multiple insurance systems with open enrolment and equal distribution rates per individual, insurers have an incentive to choose predominantly healthier persons for which the contributions that the insurer receives exceed the expenses he needs to pay for the individual.

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Chapter 3

Reaping the benefits of a transition to greener growth

The transition to a greener economy supported by international environmental commitments and national policies will entail structural changes in consumption patterns and industry structures, resulting in a reallocation of resources in and between countries. Slovakia will need to build an effective framework for green growth to maximise its chances of exploiting cleaner sources of growth and to seize the opportunities to develop new green industries, jobs, and technologies. This requires addressing environmental externalities (for example by extending environmental taxation and removing subsidies) and improving the adaptive capacities of the economy through eco-innovation. Reforms to support innovation and R&D spending, such as making existing R&D public support more efficient, strengthening the protection of property rights and developing the venture capital market are needed. Also, administrative entry barriers in the product market should be reduced, competition in energy markets and in telecommunication fostered, and the tertiary education system reformed.

Slovakia, as a catching-up economy, has to pursue strong economic growth, while preventing environmental degradation and unsustainable natural resource use. In short: to “grow green”. In particular, reducing greenhouse gas (GHG) emissions and energy intensity will be essential to limit the environmental damages of economic growth. Looking forward, environmental constraints and objectives – climate change mitigation in particular – is likely to lead to substantial global economic transformations. The transition to a greener economy supported by international environmental commitments and national policies will entail structural changes in consumption patterns and industry structures resulting in a reallocation of resources in and between countries. Implementing policies aiming at achieving these environmental goals and ensuring a smooth transition is particularly challenging for Slovakia. Its economy is highly dependent on price competitiveness and specialized in energy-intensive industries and car production. Slovakia will need to build an effective framework for green growth to limit the cost of the transition but also to maximise the chances of exploiting cleaner sources of growth, and seize the opportunities to develop new green industries, jobs, and technologies. This requires setting up a broad range of economic instruments to address environmental externalities and implementing structural reforms to improve the eco-innovative and adaptive capacities of the economy.

Climate change mitigation and increasing energy efficiency are two major challenges

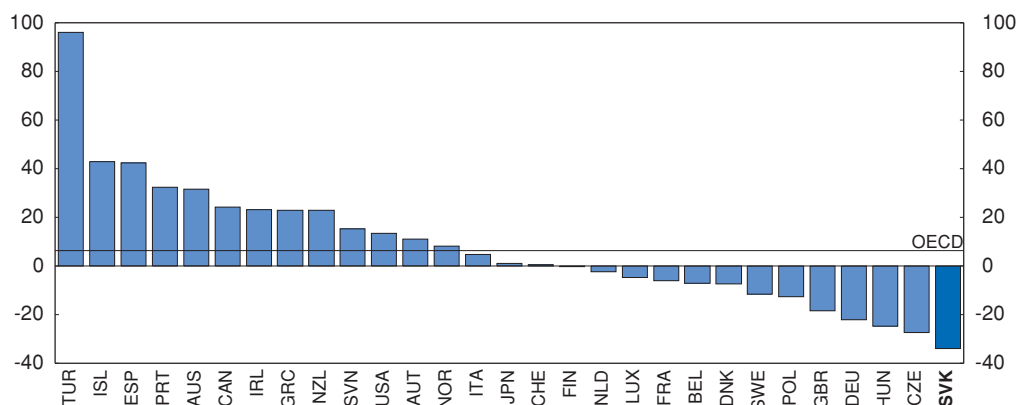
GHG emissions have been reduced since 1990...

Slovakia overachieved the objectives determined in the Kyoto Protocol by decreasing significantly GHG since 1990. The decline in GHG emissions is the highest among OECD and Visegrad countries, with average emissions 35% lower than the 1990 base-year level in 2008, well below the Kyoto target of an 8% decrease for the period 2008-12 (Figure 3.1). Between 1990 and 2007, these reductions were observed in almost all sectors with a decoupling of GHG emissions from economic growth (Figure 3.2) (EAA, 2010).¹ The main reduction in GHG emissions was in the 1990s, while the pace of decrease slowed and stabilized around –0.1% annually between 2000 and 2008.

Several factors played a role in Slovakia’s reduction in GHG emissions (Slovak Hydrometeorological Institute and Ministry of the Environment of the Slovak Republic, 2009). The sectoral composition of the economy changed as the share of services in GDP increased. The energy mix evolved towards less polluting energy sources, switching from liquid and solid fossil fuels to natural gas fuels. Energy consumption declined in some energy-intensive sectors, except for metallurgy. On the national level, energy intensity decreased by one half between 2000 and 2008, the highest decline in the OECD.²

These changes are partly explained by the structural transformation of the economy since the 1990s. The transition shock led to the closure of many energy wasting and inefficient units. Market reforms created a better business environment with increasing

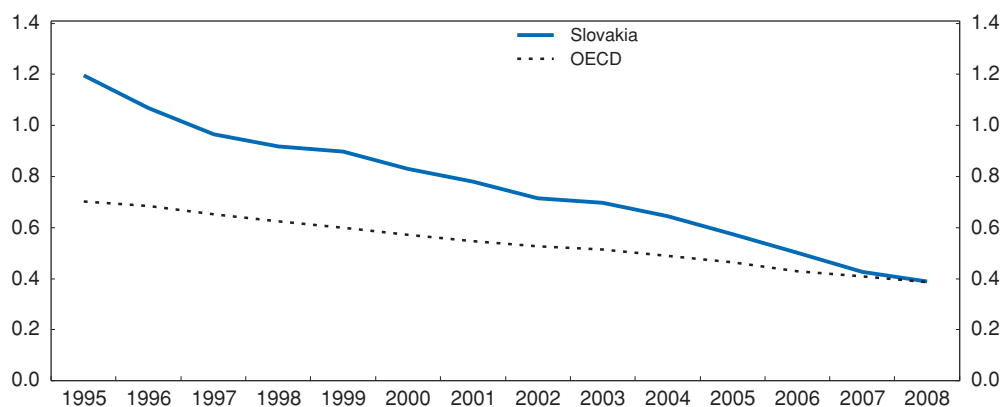
Figure 3.1. **Growth in greenhouse gas emissions between 1990 and 2008**
% change



Source: United Nations Framework Convention on Climate Change (UNFCCC), Greenhouse Gas Inventory Data.

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Figure 3.2. **Greenhouse gas emissions per unit of GDP over time**
Tons CO₂-eq/thousand PPPs USD



Source: UNFCCC and OECD Economic Outlook Database.

StatLink <http://dx.doi.org/10.1787/888932358580>

competition, contributing to a more efficient allocation of energy resources and reducing production costs. The opening up to foreign investment and measures improving the attractiveness of Slovakia as an investment location facilitated the diffusion of technologies. Innovation in green technologies and energy-efficient processes had thus enlarged the possibilities for reducing energy use. In addition, legislative measures – including to meet international commitments – influenced directly or indirectly the generation of GHG emissions *via* the change in the energy mix and technological restructuring.³ By contrast, the contribution of the EU Emissions Trading Scheme (ETS) to the GHG reduction was small because of the over-allocation of permits relative to the level of GHG emissions. In 2009, emissions represented 67% of the allocated allowances in Slovakia, while they accounted for 95% on average in the EU27. Finally, the change in relative energy prices, notably through the removal of energy price subsidies and the increase in oil prices might have encouraged a reduction in energy consumption and energy waste.

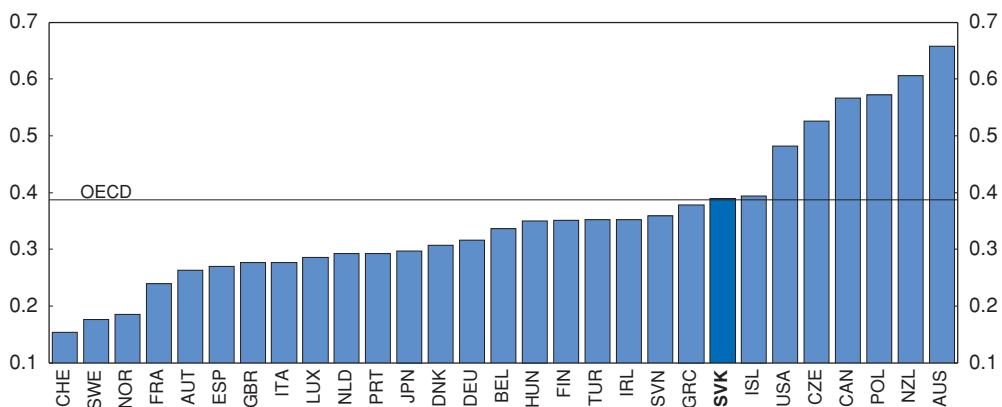
... but still remain high due to high energy intensity

Nevertheless, Slovakia ranks among the ten most GHG-intensive economies in the OECD (Figure 3.3). In 2008, GHG emissions as a share of GDP were 30% higher than in the average EU20 country (Table 3.1).⁴ In addition, the pace of reduction in GHG emissions has slowed significantly and GHG emissions will probably grow in the coming years if no additional measures are implemented. This reflects the increase in economic growth and in the marginal air pollution abatement costs, which tend to rise with the level of emissions reduction.⁵ Some projections indicate that the environmental measures announced by the government will not be sufficient to limit the expected rise in GHG emissions (EEA, 2009).

Energy intensity is the main factor behind GHG emissions...

Energy intensity is the main determinant of the high level of air pollution. Despite a significant decrease since 1990, it is significantly above the OECD and the European averages (Table 3.1). Energy-intensive industries, such as steel, petro-chemicals and cement, account for a relative high share of GDP compared to the OECD average (Figure 3.4). In these energy-intensive sectors, the weight of energy in total expenditures is above the euro area average (ECB, 2010). For example, in the chemical industry, energy spending accounts for

Figure 3.3. **Greenhouse gas emissions per unit of GDP across OECD countries**
2008, tons CO₂-eq/thousand PPPs USD



Source: UNFCCC and OECD Economic Outlook Database.


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Table 3.1. **Decomposition of GHG emissions trends (level in 2008)**

	GHG/GDP	Energy consumption/GDP	GHG/Energy consumption
Czech Republic	525.5	100.3	5.2
Hungary	353.4	89.8	3.9
Poland	571.4	94.6	6.0
Slovakia	389.3	94.1	4.1
OECD	386.6	90.3	4.3
EU20 ¹	302.6	76.3	4.0

Note: GHG emissions/GDP = (GHG emissions/energy) × (Energy/GDP), GHG are measured in Mt CO₂ eq, GDP in billion 2000 USD using PPP exchange rates and energy consumption in Mtoe.

1. EU20 is an aggregate covering countries that are members of both the European Union and the OECD. These are the EU15 countries plus Czech Republic, Hungary, Poland, the Slovak Republic and Slovenia.

Source: UNFCCC, IEA and OECD calculations.

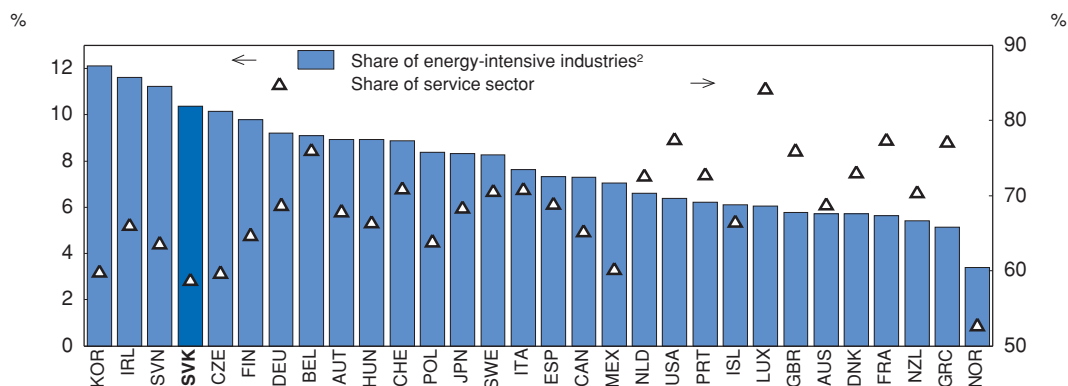
more than 20% of total expenditures compared to less than 10% in the euro area. Basic metal and transport sectors are also more energy-intensive. This may indicate that the sectoral composition of the economy is not the only factor behind the high energy intensity and that energy efficiency could still be improved in energy-intensive sectors.⁶

... while the energy mix is favourable

The high level of GHG emissions does not reflect an unfavourable energy mix. Total energy supply is characterized by high shares of low carbon-intensive energy sources, such as nuclear and gas (Figure 3.5).⁷ While renewable energy sources (RES) remain underdeveloped, Slovakia benefits from large nuclear capacities and consumes relatively more natural gas than oil. CO₂ emissions per kWh produced from different energy sources are also lower in Slovakia compared to the OECD average.⁸

Figure 3.4. **Share of energy-intensive industries and the service sector**

Per cent of total value added in 2008 or latest year¹



1. The data are for 2007 for Germany, Poland, United Kingdom and the United States, 2006 for Japan, New Zealand and Portugal, and 2005 for Australia and Canada.
2. Energy-intensive industries are defined as ISIC 21-28.

Source: OECD, STAN Database.


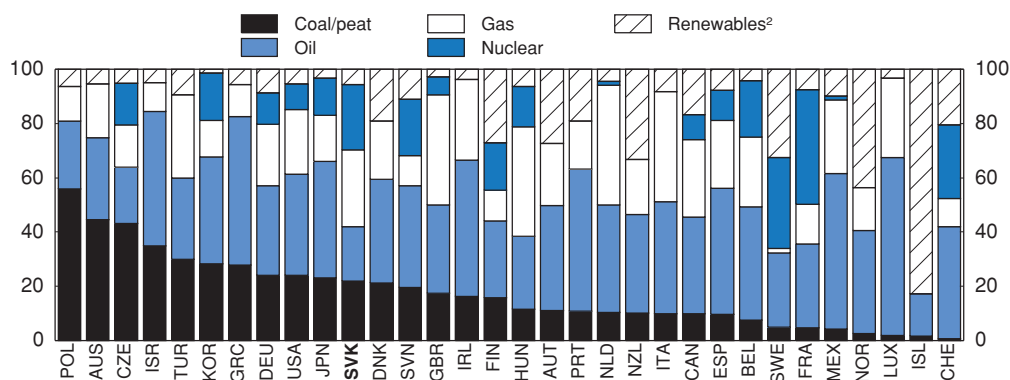
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Figure 3.5. **Total primary energy supply**

% of total, 2008¹



1. The total excludes electricity and heat.
2. Hydro, geothermal, combustible renewables and waste, and solar/wind/other.

Source: IEA (2009), *Energy Balances of OECD countries and Energy Balances of non-OECD countries*.

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In 2008, the government planned in their Energy Security Strategy to develop new nuclear capacities and maintain the proportion of electricity produced from nuclear sources at no less than 50%. The development of nuclear energy is an effective way to reduce the carbon intensity of the energy supply. It could also ensure a certain level of energy supply security, reducing the negative energy balance and lowering dependency on coal, natural gas and crude oil imports which are high in Slovakia: in 2008 around 64% of energy supply was imported (IEA, 2010). In particular, the country is highly dependent on gas imports from Russia: gas represents around 28% of total energy supply and 98% of gas is imported from Russia. In January 2009, Slovakia was severely affected by the gas supply disruption during the Russia-Ukraine dispute, which resulted in production cuts. Slovakia is also a net importer of nuclear fuel but this dependency is potentially less damaging than gas. This is because nuclear fuel provision does not depend on international distribution networks and fuel costs remain only a small fraction of the cost of electricity generated in nuclear power plants (IEA, 2008). Investment in nuclear energy should be thus fostered, although the safe management of radioactive waste needs to be ensured.

Reducing GHG emissions and energy intensity is highly desirable...

A rapid and significant improvement in energy efficiency would contribute to creating sustainable conditions for economic growth. By potentially reducing the level of GHG emissions, it would ease global climate change mitigation efforts, which are highly desirable from an economic and social point of view.⁹ Energy efficiency would also lessen environmental damages of economic activity by limiting the local environmental damage related to energy consumption. In addition, a decrease in energy intensity would facilitate the fulfilment of the current and future international environmental commitments. In particular, Slovakia has to reach the European 20-20 targets defined in the Climate Energy Package, i.e. to limit the increase in GHG emissions to 13% relative to the 2005 level, increase energy consumption from renewable resources to 14% of total energy consumption and save 11% of the final energy consumption relative to the average of 2001-05 by 2020.

In addition, better environmental performance would also have beneficial economic effects for Slovakia. Reducing energy intensity increases the energy supply security and lowers the dependency toward fossil fuel imports. Energy savings would also limit the adverse economic effects on inflation, competitiveness and potential output expected from a shortfall in the primary energy sources and rising energy prices.¹⁰ The potential gain in reducing energy intensity in Slovakia is particularly high: its level of energy intensity makes inflation more sensitive to an increase in oil prices than in other countries: an increase of 10% in oil prices leads to an increase of producer prices of 0.78% in Slovakia compared to 0.39% in EU27 (ECB, 2010). Finally, energy savings could also create room for investment and hence development of new sources of growth.

... and requires a broad range of policy measures

Reducing GHG emissions and energy intensity requires a vast range of reforms and a mix in policy instruments (De Serres et al., 2010). The Slovak authorities have tended to concentrate their efforts on the improvement of energy efficiency and the development of cleaner energy sources (renewables and nuclear power). However, increasing energy efficiency is not sufficient to limit the rise in energy consumption and subsequent GHG emissions: efficiency gains lower the relative price of energy and raise the disposal income of consumers which may lead to wasteful behaviours and result in an increase in

energy demand. These potential “rebound effects” (or “take back effects”) may limit the benefits expected from an increase in energy efficiency (Annex 1.A1). In consequence, the scope of the Slovak environmental policy needs to be broadened beyond improvement in energy efficiency. Energy and environmental policies should aim at developing incentives for energy savings and discouraging environmentally harmful activities. Emphasis should also be put on the cost-efficiency of measures, not least because urgent fiscal consolidation is needed (Chapter 1).

Addressing the challenge of making economic growth more environmentally sustainable

Pricing pollution by extending environmental taxes and removing harmful exemptions

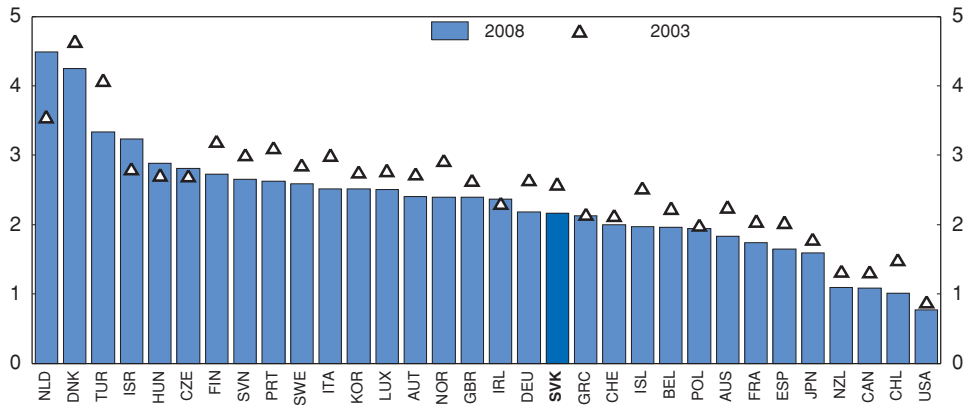
Pricing pollution is a cost-effective way to limit negative environmental externalities by discouraging environmentally harmful behaviour. Introducing taxes on pollution or a pollution trading system provides incentives to reduce energy demand, to invest in less carbon-intensive energy sources, to limit waste, and to use technologies that limit emissions. In particular, environmentally-related taxes tend to foster the diffusion and adoption of innovative technologies, even for firms which do not have the resources to undertake R&D activities (OECD, 2010a). For example, in Sweden, the rate of adoption of the abatement technology for NO_x emissions increased from 7% to 62% in the two years after the introduction of a tax.

These market-based instruments encourage the selection of cost effective options for pollution abatement and at the same time provide revenues which could replace more distorting taxes (Chapter 1). In the short and medium run, the price elasticity of pollution and energy demand is low as finding solutions to reduce pollution and energy use needs time. In consequence, during this period, the revenues raised by taxation may be high. In the long run, revenues from environmental taxation may decrease due to changes in consumption behaviour and pollution reduction and thus should not be considered as permanent revenue sources. However, changing the structure of the taxation system by increasing environmental taxes could permanently benefit economic growth as environmental taxes are less distortive than taxes on capital and labour. Recycling environmental tax revenues in lowering more harmful taxes would limit the adverse effect of taxation on the less polluting firms and limit the losses of competitiveness for polluting firms without removing the incentives for pollution abatement.


Slovakia already uses market-based instruments for environmental purposes. Regarding climate mitigation, as a member of the European Union, Slovakia participates in the EU Emissions Trading System (ETS). An environmentally-related taxation system (including taxes and charges on air pollution, water pollution, waste management, noise, energy products, transport, and resource exploitation) covers some sources of pollution and sectors not covered by the EU-ETS. The revenues from environmental taxation accounted for 2.2% of GDP in 2008, just above the OECD average of 2.1% (Figure 3.6).¹¹ Taxes include excise duties on oils (82%), other energy taxes (1%), taxes on motor vehicles and transports (7%) and taxes on other polluting activities (waste disposal, GHG emissions).

The weight of environmental taxes in GDP has decreased over the past few years, mostly due to a drop in revenues from excise duties on oil. Oil consumption declined as a result of taxation of oil and the rise in crude oil prices: oil supply as a percentage of GDP

Figure 3.6. **Environmental tax revenues**
% of GDP



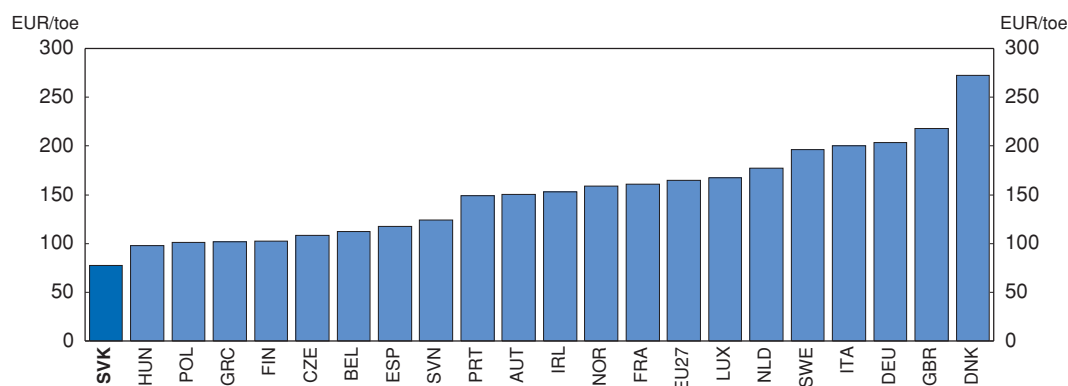
Source: OECD/EEA, Database on Instruments for Environmental Policies.

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(toe per thousand 2000 USD) accounted for 0.11 in 2008 against 0.14 in 2003 (IEA, 2009). This decrease is not observed in the transport sector as, contrary to other OECD countries, the use of motor fuels remained broadly stable as a share of GDP. The initial relatively low level of oil consumption and the underdevelopment of the transport sector may partly explain this evolution. The increase in prices might have limited the development of road transportation. However, the taxation of oil has been insufficient to foster the development of alternative transportation. The absence of alternatives for transportation could also justify the low price elasticity of oil demand in this sector. To improve the effectiveness of taxes on oil and motor vehicles in reducing air pollution, the development of alternative transportation means should be fostered. In doing so, greater scope for private suppliers of seek alternatives should be provided.

Revenues from energy taxes could be raised. Even if energy prices are above the OECD average (IEA, 2009), the implicit tax rate on energy is the lowest in the EU (Figure 3.7).¹² In addition, the share of non-oil energy taxes (i.e. excise taxes on coal, natural gas, and electricity) in total environmental tax revenues is currently low. This is partly due to many exemptions and reduced tax rates. Notably, exemptions exist for electricity, gas and coal used by final household customers, for electricity used in certain industries (if the costs of electricity represent more than 50% of the average own costs of the product manufactured), and for electricity and gas used for the transportation of persons and cargo by public transport (e.g. trains, underground, tramways). Also, the tax rate on diesel used in rail and electricity production is reduced.

Such exemptions have adverse environmental effects and lead to a misallocation of resources. As they suppress the price signal created by the tax, they encourage wasteful consumption, provide incentives to develop or maintain energy-consuming technologies and impede investment in clean energy sources. Removing these tax exemptions could significantly support the climate change mitigation effort and provide potential revenue gains of EUR 120 million, around 9% of total environmental tax revenues or 0.2% of GDP. Thus, the removal of several tax exemptions, such as exemptions for natural gas and coal used for household heating, approved by the government is welcome.

Figure 3.7. **Implicit tax rate on energy**Ratio of energy tax revenues to final energy consumption,¹ 2008 or latest available

1. The implicit tax rate is measured as the ratio between the energy tax revenues (taxes levied on the use of energy in EUR thousands) and final energy consumption (thousands tons of oil equivalent).

Source: Eurostat.

StatLink  <http://dx.doi.org/10.1787/888932358675>

The objectives pursued by the exemptions could be achieved through alternative instruments that could raise both economic efficiency and environmental outcomes. The exemptions designed for households implemented for social reasons are counterproductive: they are not targeted and give greater benefit to rich households who consume more energy. They should be replaced by targeted cash transfers, compensating for the cost of the taxation, but not linked to energy consumption. The exemptions offered to energy-intensive industries are inefficient as they could encourage firms to increase their energy consumption over the 50% ceiling required to qualify for the exemption. Well-targeted and time-limited compensation could be offered to energy-intensive industries to offset the financial loss related to the increase in taxation and ease the transition towards higher energy costs. The reduced tax rate in the rail and water transport sectors is implemented to foster the development of alternative transportation which could lead to a decrease in oil consumption. The development of these sectors could be encouraged by increasing taxation on polluting transportation means or at least by replacing the reduced tax rate by direct subsidies to avoid encouraging energy inefficient technologies.

Slovakia also has room to increase environmental tax revenues by creating new taxes and raising tax rates. The share of environmental taxation in total tax revenue (around 7.7%) is above the OECD average but could be extended: for instance, in 2008, environmental taxes account for respectively 12% and 14% of total tax revenues in the Netherlands and in Turkey. The low level of non-oil taxes compared to other OECD countries also suggests margins for the development of environmental taxation. For example, the government should consider increasing the tax rate on NO_x which is quite low in international comparison (OECD, 2010a). In addition, a carbon tax should be set up in those sectors not covered by the EU-ETS. This measure would allow a unique price to be put on GHG emissions, thereby limiting distortions across sectors and minimizing the cost of reducing emissions by equalising marginal abatement costs across all emitters. Establishing a tax is less costly than setting up regulation or extending an ETS when technical or measurement problems make the monitoring of emissions difficult, mostly when sources are small and diffuse (e.g. households). It also spares the information costs related to regulation changes and is easy to implement. To be efficient, carbon taxes should

be transparent, predictable and credible to encourage firms to invest and innovate in green technologies in the long run. They should not replace other taxes, such as oil taxes or motor vehicle taxes, to the extent these taxes are not addressing externalities related to carbon pollution (but aim at other purposes, such as financing public infrastructures or limiting other sources of air pollution).

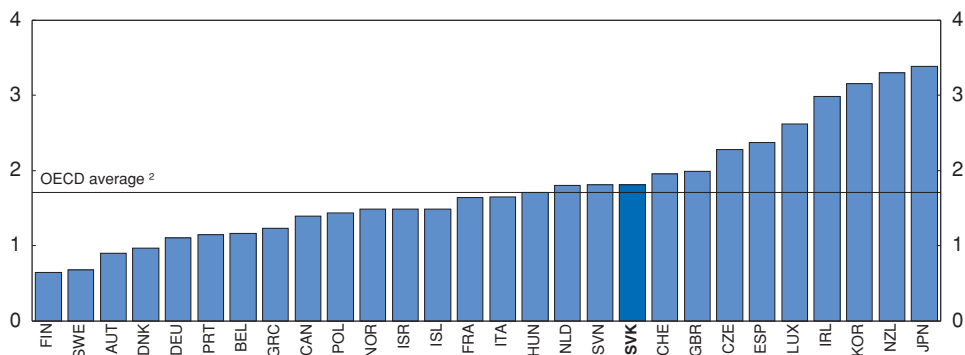
Environmental taxation could also be extended by introducing an environmental dimension in the motor vehicle tax. This tax is currently levied on vehicles used for business purposes depending on vehicle weight and the number of axles for trailers and on the engine cylinder capacity in cubic centimetres for passenger vehicles. The taxation should be broadened to all vehicles and improved by switching the tax base to air pollution and energy consumption of the vehicles so as to encourage consumers to buy environmentally friendly vehicles. As this measure disadvantages low income households unable to change their cars, a gradual phase in should be considered.

Improving the framework of environmental policy

Apart from environmental taxation, Slovakia's energy and environmental policies are largely based on legislative changes – often due to EU commitments – and the provision of subsidies financed by national and EU structural funds. Public expenditures allocated to environmental protection account for 1.8% of total public expenditures (0.6% of GDP) which is comparable to the OECD average (Figure 3.8). Besides, environmental protection is one of the main priorities for the use of EU-funds between 2007 and 2013 (Chapter 2). The environment operational programme accounts for EUR 1.8 billion (2.7% of GDP), which is approximately 15.5% of the total EU money invested in Slovakia under the Cohesion Policy for 2007-13 (second after the operational programme for transport). It focuses mainly on protection and rational utilisation of water (51% of the allocated funds), but also includes programmes for waste management, flood prevention and air protection.

Regarding energy efficiency, Slovakia established the National Energy Efficiency Action Plan 2008-10 (INEEAP) in 2007. This programme aimed at saving 3% of energy by 2010 and 9% by 2016.¹³ It includes horizontal measures, such as the establishment of

Figure 3.8. **Share of public expenditures allocated to environmental protection**
% of total public expenditures, 2008 (or latest available)¹



1. 2007 for Iceland, Japan and Switzerland; 2006 for Canada and 2005 for New Zealand.

2. Excludes Australia, Chile, Mexico and Turkey.

Source: OECD, National Accounts Database.

monitoring capacity, the launch of information campaigns, the introduction of energy efficiency criteria in public procurement, and more sector specific policies, notably in the building sector, such as the provision of preferential loans for the thermal insulation of buildings. The total budget for implementation of the energy efficiency measures covered by the 1NEEAP is to be EUR 72.6 million, about 0.1% of GDP (including EU funds). As the 1NEEAP is currently being evaluated by the Ministries in charge of its implementation, the total investment into these energy efficiency measures and their outcomes remain unknown.

Slovakia also implements programmes to develop RES. RES accounted for 6.7% of gross final energy consumption in 2005, which should increase to 14% in 2020 according to the EU commitments (Directive 2009/28/CE). In 2009, the Slovak government introduced new renewable energy legislation and increased the use of subsidies to foster the development of RES (Box 3.1).

Box 3.1. National measures to develop renewable energy sources (RES)

The national measures aiming at developing RES are mostly subsidies and tax exemptions, notably:

- Feed-in tariffs for electricity production from RES and from high-efficiency cogeneration (combined production of electricity and heat) were introduced in the electricity sector in January 2006 and reformed in 2009. Electricity distributors commit to purchase power from RES at a fixed price above the market price. The tariffs are guaranteed for 15 years and defined by the RONI (Regulation Office for Network Industries). In addition, the RES electricity producers benefit from a preferential access to the network (connection to the regional distribution system, access to the system, transmission, distribution and supply of electricity) and have the priority to sell their production to energy distributors.
- Slovakia has been allocating subsidies to develop biomass and solar energy production since 2009. The Programme for Promotion of Biomass and Solar Energy Use in Households is providing state aid for the installation of biomass generated boilers or solar collectors.
- The environmental taxation system includes tax exemptions to foster the use of clean energy sources notably on bio-fuels, on Liquefied Petroleum Gas (LPG), on electricity generated from a renewable source or combined generation of electricity and heat, on electricity, gas and coal used in combined generation of electricity and heat, and on gas designated for the production of compressed natural gas used as a motor fuel.
- In 2006, a regulation intended to promote bio-fuels to ensure the transposition of the EU Directive on bio-fuels (Directive 2003/30/EC). By 31 December 2010 bio-fuels should account for 5.75% of the total quantity of petrol and diesel fuel (measured on the basis of energy content).
- Additional measures are planned in the draft of the National Action Plan for Renewable Energy (NAPRE), notably in the housing and the energy sectors. New regulations are considered, such as introducing an obligatory use of RES in new and reconstructed buildings and in heating/cooling in public buildings, establishing a minimal share of heat supply from RES in district heating, and an amendment of legislation on urban planning and construction. Tax exemptions for RES heat production and for RES equipment are also being discussed.

The development and implementation of the Slovak environment and energy policies are not centralized and lack co-ordination. For example, several funds are devoted to the same objective, notably the improvement of energy efficiency in the housing sector and RES development.¹⁴ The multiplicity of funds and programmes seems to lead to an overlap in instruments and a misallocation of resources. While the drawing of EU funds in the environmental programme is particularly weak (Chapter 2), the requirements for a grant from the Environmental Fund exceed 10 to 12 times its financial capabilities. Some co-ordination efforts have been made recently; in particular, the Commission for the Climate Energy Package (CEP), involving all relevant ministries, has been established to prepare the implementation of the CEP and to develop a national strategy on climate change and RES. Co-ordination should be improved by reforming the framework of environment and energy policies, notably during the preparation of the second National Energy Efficiency Action Plan for 2011-13 (2NEEAP) and of the definitive action plan for the implementation of the CEP. The development, implementation and monitoring of these policies should be centralized and instruments and funds addressing the same issue should be merged.

Some regulatory barriers may also limit the efficiency of environmental measures and should be reconsidered. In particular, regulation in the solar and wind energy sector hampers the development of RES. The administrative rules for the construction of solar power plants have been tightened recently to ensure the security of the electricity transmission network. All investors have to obtain a certificate of compliance with the government's long-term energy policy to build a solar power plant.¹⁵ The rules behind the allocation of certificates lack transparency and should be clarified. Environmental legislation on protection of wildlife limits the development of wind power. Wind power represents a smaller share of RES production in Slovakia compared to neighbouring countries where there is simultaneously a large number of windmills installed, as well as a lot of attention for wildlife (*e.g.* Austria). This indicates that these environmental regulations should be reassessed, for instance by using international benchmarking.

Selecting the most cost efficient tools to foster environmental-friendly activities

Outcomes of the energy and environmental policies would also be improved by a systematic assessment of the instruments used. Evaluations are crucial to learn from past experiences, avoid shortcomings, and improve the information on the gains associated with the measures. In Slovakia, the environmental, budgetary and economic impacts of the proposed measures are not automatically considered during the determination of environmental and energy policies. Environmental and energy measures should be systematically evaluated *ex ante* and *ex post*. A first best would be to carry out cost-benefit analyses considering indirect effects such as rebound effects, non-environmental benefits, and macroeconomic impacts (in particular the economic impact of the financing of the subsidies). However, as complete cost-benefit analyses may be costly, the government should at least implement national guidelines and devote capacities for the evaluation. During the evaluation, the cost-efficiency of the measures, the synergies with other policies and the distributional impact of policies should be assessed. Regarding *ex post* evaluation, measurable targets should be defined to ease the assessment of outcomes.

Also, limiting the use of subsidies could enhance the efficiency of Slovakia's energy and environmental policies. For policy makers, subsidies may be enticing instruments because they foster pollution reductions, increase demand in new sectors, create incentives to invest, and stimulate economic activity. However, subsidies are generally not

cost effective compared to other market-based instruments. First, subsidies increase pollution abatement costs, particularly when the cost-efficiency of the subsidized technologies is low. Second, a high level of subsidies is costly to the budget. Third, the potential negative impact of the financing of the subsidies on the economy are important: financed by an increase in energy prices (e.g. feed-in tariffs) or by a rise in (distortive) taxes (e.g. subsidies financed by public funds), they may induce inflationary pressures, raise production costs, and reduce competitiveness. As a result, subsidies may deter economic activity even when their stimulating effect is taken into account. Many recent studies assessing the policies for the development of RES in OECD countries show that the costs of these policies largely overcome their environmental and economic gains (Lavecchia et al., 2010, for Italy; Cazalda et al., 2009, for Spain). Fourth, subsidies do not provide incentives to lower the pollution abatement cost and may divert investment from other low-emission technologies that could be more cost effective and thus hamper the development of new technologies.

In certain cases, however, the use of complementary subsidies could be appropriate to reach environmental targets on time. Market failures resulting in a weak response of agents to price signals can make market-based instruments inefficient for reducing effectively pollution and energy consumption and delay the effects of environmental and energy policies (De Serres et al., 2010). For instance, uncertainty about future pollution costs, energy prices, and development of technologies may hamper investments in green technologies (IEA, 2010). Imperfect information about the gains associated with investment could limit the demand for energy efficient or less polluting equipments. This effect is more important in certain sectors, where the energy cost is not decisive in economic choices as it represents a small share of the total cost or when the investments are irreversible (Geller et al., 2005). Limited access to credit may also hamper the adoption of energy efficient or low carbon technologies. This is particularly significant for low income households which may suffer from new regulation as they tend to not have access to the green technologies (because of a lack of disposal income or a limited access to credit and to information) and spend a higher amount of their revenues on energy. Numerous studies find that the discount rate for energy efficiency investment decreases with the level of the income (Geller et al., 2005). As subsidies are costly and as Slovakia needs to implement fiscal consolidation measures, those subsidies which can be replaced by other market-based instruments should be phased out. Subsidies should be used only to address specific and identified externalities. For instance, direct and targeted state aid should be implemented to ease access to clean energy for low income households.

In this perspective, particular attention should be given to the measures to develop RES, i.e. feed-in tariffs, subsidies to get RES equipments and tax exemptions (see Box 3.1). Developing RES is less efficient than other climate change mitigation policies (e.g. a carbon tax or the EU-ETS), as they force emission reduction to be realised through certain technologies. However, they are a way to decrease the dependence on imported energy and limit the resource shortages related to energy production. Furthermore, Slovakia as a member of EU has to reach an ambitious renewable target by 2020. Several reforms should be considered to improve the cost efficiency of RES policies in Slovakia. First, the interaction of these measures with other policies having an impact on GHG emissions (e.g. EU-ETS) and encouraging the use of low carbon technologies should be taken into account. Pricing pollution creates incentives to develop clean technologies but should be complemented by other measures to orient energy consumers and producers towards RES.

These measures should be cautiously monitored to avoid excessive CO₂ abatement cost and deadweight losses due to a too high rate of return. In particular, experience in other countries suggests that care is needed in setting and monitoring the fixed feed-in tariffs to prevent renewable energy production in which the additional cost over traditional energy production exceeds estimates of their benefits.¹⁶ In Slovakia, feed-in tariffs are high compared to the level of electricity prices (11 times higher in the case of solar energy) and may have led to abusive investments. These tariffs should be revised, as planned by the government, by assessing their efficiency to achieve the RES goal in the least costly manner. Besides, the regulatory authority should consider adjusting the tariffs as a function of the technological maturity of equipment to encourage innovation and not distort the choice of abatement technologies. Second, tax exemptions on electricity produced from RES should be removed as feed-in tariffs already encourage the production of RES electricity and legislative rules ensure that electricity produced from RES is bought by distributors. Third, the efficiency of subsidies may be lowered by crowding-out effects if supply for green technologies and equipments is underdeveloped, as an increase in demand may create supply shortages and increase prices. Competition in the market for green technologies should be promoted to ensure a flexible supply response and efficient production (or importation). Fourth, subsidies supporting the installation of RES equipment by households should be reconsidered. As in the case of feed-in tariffs, the efficiency of this measure should be evaluated. For example, the question on whether the development of RES should be done on the household's level should be addressed. If promoting RES in households is set to be efficient, the framework of the policy should be revised. These subsidies aim at encouraging households to install RES equipment because the private return of the investment takes time to materialize, information on the potential gains of RES is lacking and some households cannot finance this investment. However, as mentioned above, these subsidies are potentially costly and may induce an increase in RES equipment prices.¹⁷ The recommended removal of exemptions on tax energy and the increase in environmental taxation should create incentives for households to invest in RES. This should be complemented by information campaigns on the gains related to RES production. Soft loans could replace subsidies to provide financing means to credit-constrained households. If the subsidies would be maintained, they should at least be better targeted on credit-constrained households.

Developing green sources for long-term growth and adapting to a greener economy

Eco-innovation as the key to address the challenges posed by a greening economy

Pollution mitigation policies and resource shortages will inevitably lead to an increase in energy prices and induced pollution abatement costs. In particular, in the EU-ETS, from 2013, the number of allowances available to businesses will be progressively reduced, the free allocation of allowances will be gradually replaced by auctioning, and the sectors and GHG covered by the system will be expanded. As the EU-ETS represents roughly half of total GHG emissions in Slovakia, the revision of the EU-ETS will encourage a significant reduction of GHG emissions but also weigh on the costs of production.¹⁸

The potential losses in competitiveness may be significant when the country, like Slovakia, is specialized in sectors for which the price elasticity for the goods produced is high or in sectors which are energy intensive. In particular, energy intensive sectors (especially steelmaking) are highly competitive and firms have no margin to pass-through

an asymmetric increase in production costs on their final prices. The Slovak automotive sector could also be affected by the greening of the economy: rising oil and carbon prices may reduce automotive demand and change the specialization of the automotive industry towards less energy consuming cars.

Slovakia has to prepare for such structural changes as it risks losing market shares in its sectors of specialization. Losses of competitiveness would be limited by the recycling of environmental taxes and expected gains in energy efficiency. Besides, environmental policies may even affect competitiveness in a positive way, by encouraging efficiency gains and productivity growth (OECD, 2009a). Nevertheless, the risks remain high and the sectoral or distributional effects of a greening economy should be anticipated to set up a comprehensive strategy for economic growth. For example, a challenge for Slovakia, confronted by the change in the automotive industry, is skill shortages since producing new car types would require more qualified labour. The energy-intensive and the automotive industries employ primarily non skilled workers who will have difficulties to adapt to changes in qualification requirements.

In addition, to limit the cost of the transition to a low-carbon economy, Slovakia will have to access and adopt new green technologies. Even if technological innovation for climate change mitigation developed a lot between 1978 and 2006 (OECD, 2010b), the technologies and processes needed to reduce emissions and ensure environmental sustainability are still lacking (Aghion *et al.*, 2009).¹⁹ R&D and innovation activities for environmental purposes are likely to develop on the global level as economic benefits related to environmental innovations are significant. They may foster the development of new sectors for which demand is potentially high. In this context, Slovakia should improve the adaptive capacity of its economy to adjust to this moving technological frontier. It should also find ways to lower the purchase cost of these technologies.

Developing a framework for eco-innovation – i.e. implementing new, or significantly improved, products (goods and services), processes, marketing methods, organisational structures and institutional arrangements which lead to environmental improvements compared to relevant alternatives – is an effective way to address these economic and environmental challenges.²⁰ First, eco-innovation is needed to integrate the green technologies into the national framework (*e.g.* create infrastructures for smart grid) and to adapt to new environmental constraints (*e.g.* find organisational solutions to limit wasteful use of resources at the firm level). Second, fostering eco-innovation would ease the transition toward a greener economy as it induces reforms which improve the overall functioning of the economy and the economy's adaptability to structural change. Finally, eco-innovation creates new sources of growth by fostering the development of new sectors and new knowledge. This is crucial for Slovakia as it emerges from the crisis and needs to pursue further its catching-up process. Slovakia cannot just rely on its competitive advantage of low labour costs to drive its economic development. Competition from neighbouring and emerging countries is likely to intensify and Slovakia will have to find new sources of competitiveness so as to maintain its attractiveness as a place of investment. Besides, future growth will rely on its capacity to increase the performance of domestic firms and to raise gradually the autonomy of its economy from foreign investments.

Fostering eco-innovation requires implementing structural reforms to foster general innovation capacity rather than targeting R&D efforts on specific fields (OECD, 2010c). Innovation does not rely exclusively on R&D activities and only a very small percentage of

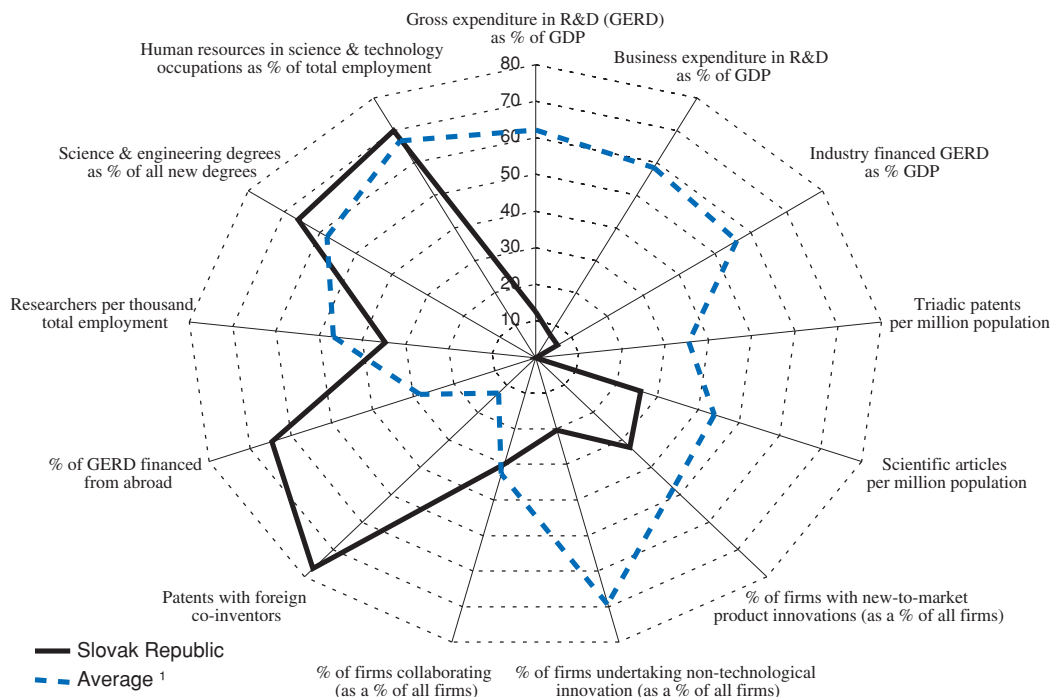
green technology patents between 2000 and 2007 draw on environmental or energy R&D (OECD, 2010b). It rather requires implementing a broad range of reforms, involving measures to support innovation and R&D spending as well as improving the business environment and human capital formation. These policies are complementary and need to be co-ordinated. The urgent need for fiscal consolidation should not delay their implementation but instead promote a cost-effective implementation.

A framework for eco-innovation needs to be created

Slovakia is among the countries with the lowest performance in innovation in international comparisons (OECD, 2010d). In 2008, the number of triadic patents and cross-border trademarks *per capita* was significantly lower than the OECD average and only a low percentage of firms had innovation activities (Figure 3.9). Slovakia is a net technology importer: expenditure on foreign technology (technological payments) is greater than expenditure for domestic business enterprise R&D (Figure 3.10).²¹

The general level of R&D is also low relative to other OECD and Visegrad countries. Despite a recent increase in public R&D spending, total gross expenditures on R&D (GERD) are the second lowest in the OECD (0.5% of GDP in 2008) (Figure 3.11). Compared to the public sector, the business sector plays a small role in the national R&D system. Only 40% of R&D activities are performed in the business sector (against 70% in the OECD) and the share of industry funding in total GERD is significantly below the OECD average. In addition, Slovakia is the only OECD country which experienced a decline of business expenditures on R&D in real terms during the last decade (almost 10% per year) (OECD,

Figure 3.9. **Science and innovation profile of the Slovak Republic**



1. OECD countries where the data are available, excluding Chile and Slovenia.

Source: OECD, *Science, Technology and Industry Outlook 2010* (forthcoming).


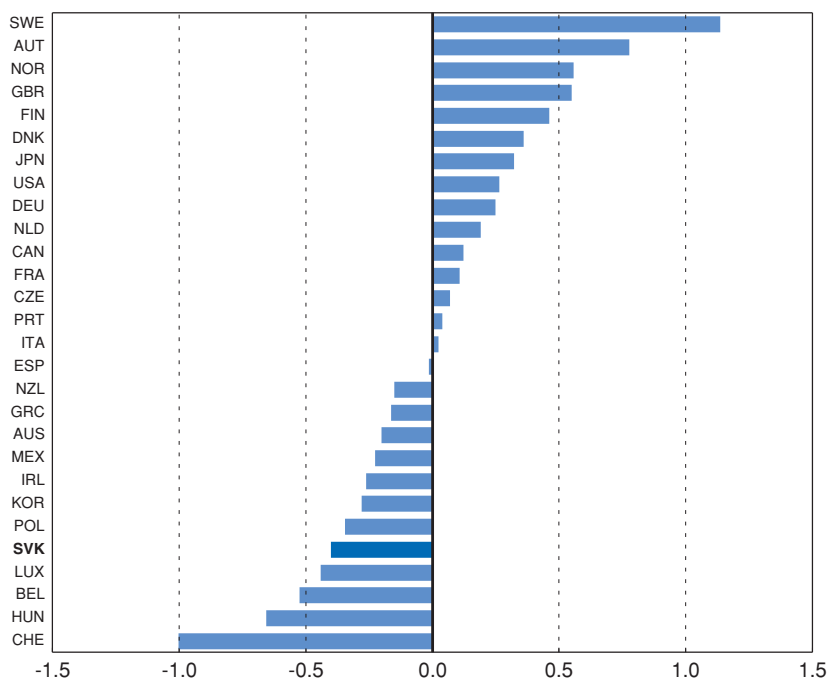
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Figure 3.10. **Technology balance of payments**
% of GDP, 2008 or latest available¹



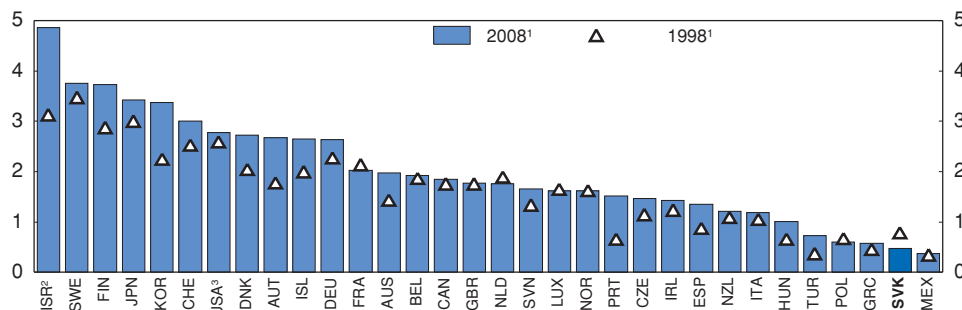
1. 2007 for Canada, Korea and Switzerland; 2006 for Denmark, Netherlands, New Zealand and the Slovak Republic; 2005 for Mexico and 2003 for France.

Source: OECD, Main Science and Technology Indicators Database and Economic Outlook Database.

StatLink <http://dx.doi.org/10.1787/888932358732>

2009b). Efficiency of public R&D spending to increase private R&D performance is weak (Cincera, 2009). The fiscal stimulus to foster R&D investment implemented in 2009 had little success; only 5% of the allocated budget was spent due to a low number of applications. The drawing of EU funds for the R&D Operational Programme is low: only 4% of the funds allocated for the period 2007-13 have been paid out by May 2010 (Chapter 2).

Figure 3.11. **Gross expenditure in R&D**
% of GDP



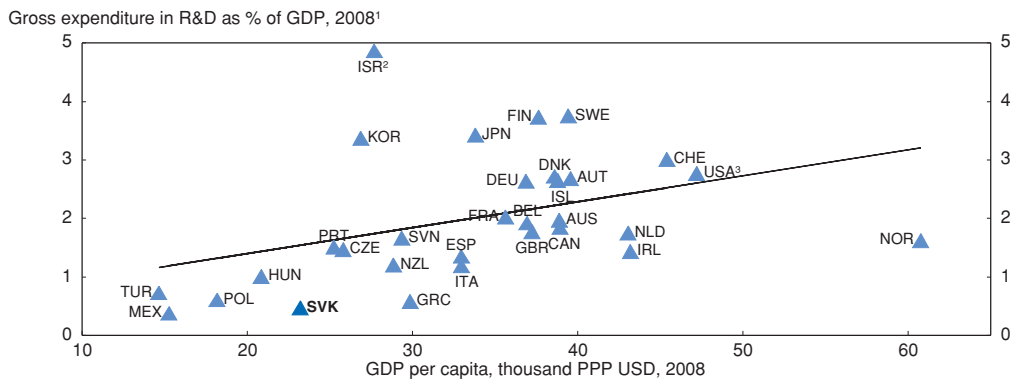
1. Instead of 2008: 2007 for Greece, Mexico and New Zealand, and 2006 for Australia; instead of 1998: 1997 for Greece, Norway, New Zealand and Sweden, and 2000 for Luxembourg and Switzerland.
2. Defence excluded (all or mostly).
3. Excludes most or all capital expenditure.

Source: OECD, Main Science and Technology Indicators Database.

StatLink <http://dx.doi.org/10.1787/888932358751>

These outcomes may partly reflect the lower income level of Slovakia as the level of R&D expenditures is closely linked to the level of economic development. However, even compared to countries with a similar GDP level, Slovakia lags behind (Figure 3.12). The differences in R&D intensity could be also explained by many other factors, such as differences in the sectoral composition of the economy (Moncada-Paterno-Castello *et al.*, 2010) and specificities in the national institutional framework for innovation activities.

Figure 3.12. **R&D spending and income levels**




1. Instead of 2008: 2007 for Greece, Mexico and New Zealand, and 2006 for Australia.

2. Defence excluded (all or mostly).

3. Excludes most or all capital expenditure.

Source: OECD, *Main Science and Technology Indicators Database* and *Economic Outlook Database*.

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The underdeveloped use of policy measures for innovation is a major factor behind the poor innovative performance of Slovakia. Pro-innovative measures appeared after 2000, as innovation became a top priority in “the Competitiveness Strategy for the Slovak Republic until 2010” and in the “Strategy of Innovation Policy of the Slovak Republic for 2008-10” adopted in 2007. Since 2007, many planned measures have been postponed, in particular the creation of Regional Innovation Centres, a central project accounting for 45% of the total amount allocated to the innovation policy for 2008-10. In addition, total R&D expenditures have been excessively responsive to the business cycle compared to other OECD countries (OECD, 2009b).²² This is unfortunate as R&D is a major determinant of the innovation level and of absorptive capacities of knowledge, i.e. the capacity of firms to select the promising knowledge, to assimilate them, and apply them to commercial purpose (Cohen *et al.*, 1990). When preparing the innovation policy for years 2011-13, Slovakia should thus ensure long-term support to innovation and R&D by effectively promoting R&D activities and implementing announced reforms. Regular monitoring and evaluation of innovation policy should be systematic to identify failures of the support system.

The lack of coherence and the complexity of the Slovak innovation policy may also explain this weak innovative performance, in particular because it hampers the public awareness about support for innovative activities. Synergies between innovation policy, managed by the Ministry of Economy and R&D policy, managed by the Ministry of Education, are missing. Several administrative entities are in charge of the implementation of public support for R&D without any apparent real cohesion (Box 3.2). The local needs in public support are not addressed due to a poor co-ordination between the national and regional level. This fragmentation of competencies impedes the creation of a comprehensive

functioning innovation system. Slovakia should better co-ordinate innovation policy across government bodies and clearly define competencies in the area of R&D and innovation. Slovakia should also create a central portal providing information on institutions granting support to innovation and examples of successful innovative strategies.

Box 3.2. **Public support for innovation and business R&D in Slovakia**

The current public support for private innovation in Slovakia is composed of national grants, R&D subsidies, mostly in the form of EU-Programmes and tax credits

- The Ministry of Economy, in charge of the innovation policy, provides regional investment aid allocated to investors for the setting up of a new technology centre or the expansion of an existing one (acquisition of material asset and immaterial assets, contribution for newly created jobs).
- Before 2009, the Ministry of Education offered direct public funding of business R&D via subsidies. Since 1 January 2010, tax incentives have also been introduced in complement. This public funding is distributed to firms creating or developing R&D activities – basic or applied research, experimental development, elaboration of feasibility studies, protection of intellectual property, and temporary assignment of staff for highly qualified research and development. The level of subsidies decreases with the size of the firm. The system is more generous for basic research (100% of the costs are reimbursed) and for projects inducing co-operation with SME and R&D organisations (universities, research institutes, business organisations of research and development) or cross border co-operation.
- National grants for R&D projects are allocated by the Slovak Research and Development Agency. The allocation of grants is organised by a system of public call for tenders.
- EU funds allocated to the Operational Programme for R&D are managed by the Agency of the Ministry of Education of the Slovak Republic for the Structural Funds. The goal of the programme is to modernize and make the system of research and development more effective. The financial support will be used to improve the infrastructure of higher learning schools, support the creation of networks of excellence in research and development and international co-operation, and establish new innovative small and medium-sized enterprises (spin-off activities). EUR 1.4 billion (2.1% of GDP) has been allocated to this programme.

Developing efficient financial incentives...

The underdevelopment of innovation in Slovakia, *a fortiori* of eco-innovation, is partly due to the absence of efficient financial incentives for firms to invest in such activities. Implementing environmental policies fosters eco-innovation by creating financial incentives to develop green technologies, processes and products. For example, taxing polluting activities, establishing environmental regulations, launching information campaigns or introducing environmental criteria in public procurement, create demand for green products and so market opportunities for firms. However, market failures may hamper the development of eco-innovative activities and additional public interventions, such as the provision of financial support, is then required (De Serres et al., 2010). The lack of information on the economic impact of pollution and climate change and the credibility of current and future environmental policies make the private returns of eco-innovation investment uncertain. Network, learning by doing and scale effects increase the cost of investments and constitute entry barriers to new technologies. In the energy sector, technologies used depend

on existing infrastructure with strong hysteresis effects. In particular, the development of RES requires the expansion of the electricity transmission and distribution network, which is costly and hampers their commercialisation and adoption. Finally, the high risk of not benefiting from their investment may discourage firms from innovative activities.

Slovakia provides financial public support for private R&D which relies mostly on direct subsidies (Box 3.2). Developing indirect R&D supports, such as tax credits, should also be considered as they are likely to increase private R&D investment, improve the allocation of resources and limit the administrative burden. Empirical analysis suggests that tax credit policies can induce higher private R&D expenditures than direct government subsidies (OECD, 2003). Tax credits may also be more efficient than public subsidies as they use the commercial expertise from the private sector, which may select the most promising innovations. They avoid “picking winners” and deadweight losses due to asymmetry of information on the market value of innovation. Their main drawback is that they do not orient innovations to environmental issues. In consequence, tax relief would be efficient to foster eco-innovation if complemented by environmental policies which create incentives to innovate in green technologies. As a complement, direct subsidies should be used to develop technologies which are not naturally selected by the private sector because they require long-term research and are too far from commercial viability.

While Slovakia has a tax relief, the application process for it and the non transparency of eligibility rules hamper its efficiency. In the current Slovak funding system, firms have to apply for the tax credit and projects are selected by the administration. This system induces administrative burden and time consuming procedures. Moreover, the financial support is uncertain for firms as it involves prior administrative selection. Clear conditions of eligibility should be defined and projects should only be excluded on eligibility grounds. Application for tax relief should also be simplified and integrated in the procedures for tax collection.

... better protecting property rights

Strong protection of intellectual property rights (IPR) is also crucial to make eco-innovation profitable. It ensures inventors that their invention will not be used without compensation and guarantees they will get the full returns on their investment. Besides, a strong level of patent protection tends to be positively associated with inward foreign direct investment, international technology transfers and non-resident patenting (Park *et al.*, 2008). The legal framework for IPR protection in Slovakia is comparable to other EU member states. Intellectual property is protected through the implementation of EU intellectual property directives and by ratified international intellectual property protection treaties (*e.g.* Agreement on Trade-Related Aspects of Intellectual Property Rights, IPR treaties managed by the World Intellectual Property Organization) administered by the Industrial Property Office of the Slovak Republic (IPO).²³ However, a composite index of patent right protection (Park *et al.*, 2008) ranked Slovakia among the ten OECD countries with the least protection of IPR in 2005. The protection rights are restricted as compulsory licensing of certain patents is possible and protection may be lost if the invention is not put to use. In addition, the Slovak IPR system suffers from a weak enforcement (piracy and counterfeiting in particular).²⁴ The functioning of the IPR system has improved recently: the procedures have been shortened; the number of pending patents reduced; and the decisions of the Office are now inspected by a court (Industrial Property Office of the Slovak Republic, 2009). This effort should be pursued further and the enforcement of property rights protection should be strengthened.

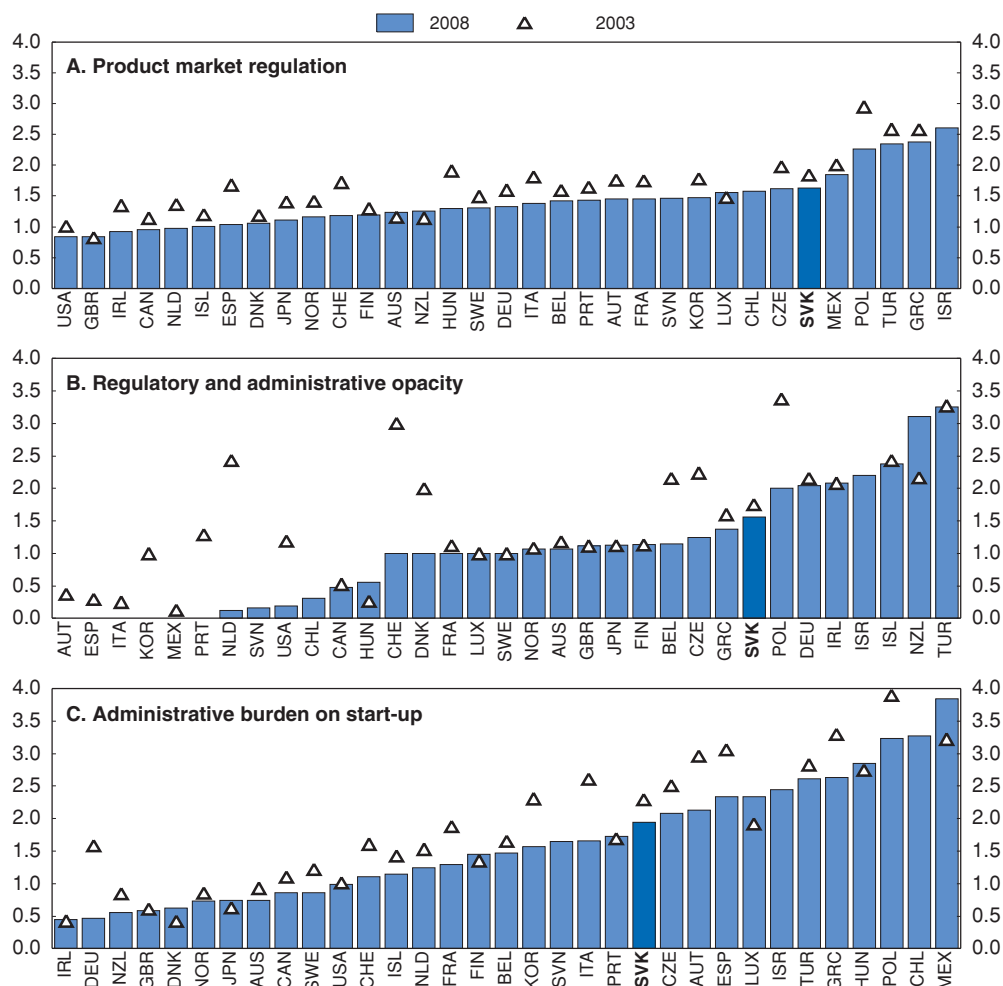
Improving the business environment by fostering competition...

A business-friendly environment is a necessary condition for eco-innovation. In particular, enhancing competition, improving access to capital and increasing the availability of a flexible and skilled labour force are essential to create adequate conditions for firms to innovate and to adapt to a greener economy.

Competition can raise firms' incentives to innovate and improve their cost-efficiency. Firms on contestable markets are encouraged to exploit new technologies to gain market share and most radical innovations are performed by new firms (De Serres *et al.*, 2010). Thus, removing entry barriers in product markets is beneficial for innovation.²⁵ In addition, flexible product market regulation (PMR) could support the reallocation of firms during structural changes. Slovakia's regulatory policy environment is more restrictive than that of the other Visegrad countries (Figure 3.13). It scores relatively poorly in PMR indicators for barriers to entrepreneurship, in particular for the regulatory and administrative opacity and the administrative burdens on start-ups indicators. This

Figure 3.13. **Restrictive product market regulations**

Index scale of 0-6 from least to most restrictive



Source: OECD, Indicators of Economy-wide Regulation (PMR), www.oecd.org/eco/pmr.

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picture is confirmed by the *Doing Business* survey of the World Bank: even if Slovakia has made some notable progress in facilitating the start up of new businesses, starting a new business is still more complicated, costly and time-consuming than in many other OECD countries. In consequence, Slovakia should identify administrative burdens, as planned in the Modernization Programme Slovakia 21, and quickly establish a timetable for measures aimed at tackling the identified business barriers. Administrative procedures should be simplified, by establishing single contact points for firms and unifying procedures for the collection of social security contributions (Chapter 2).²⁶

In Slovakia, network industries and services are characterized by important regulatory barriers. Product market competition should be strengthened in these sectors (OECD, 2007). Specific attention should be given to the energy sectors where competition is underdeveloped despite the recent opening up of the markets and where potential gains of eco-innovation are important (Box 3.3). Regulation of energy prices could deter the development of competition as it sends a bad signal to potential competitors and may be too restrictive to make investment in the energy market profitable. When determining regulated prices, the Regulatory Office for Network Industries (RONI) has to ensure that the regulation does not hamper the entry of new competitors. In particular, the price-setting framework should be more stable and transparent. Besides, prices should not be lowered for social reasons. First, by artificially reducing energy prices, it lowers the profitability of entering the market for new investors. Second, it is not efficient because not targeted on low income households. Third, it has adverse environmental effects as it discourages households to reduce their energy consumption and invest in energy efficient equipments. Targeted measures could be implemented to compensate low income households for increases in energy prices. The low level of competition may be also due to non-price discrimination of new entrants. Unambiguous and transparent rules for the access conditions to the grid, the enforcement of contracts and the authorization procedures for the construction of new power plants should be set to avoid the exclusion of potential competitors.

The protection of investors against uncertainty regarding the legal framework is also a crucial determinant of long term investment and thus innovation. The *Doing Business Survey* suggests that protection of investors could be reinforced in Slovakia. The delays to enforce a contract are significantly above the average (565 days vs. 462 in the OECD) and the recovery rate after bankruptcy is low (only 46% of the investment cost is recovered from the insolvent firm vs. 69% in the OECD). In addition, Slovakia continues to rank poorly in the Transparency International's corruption perception index, which may add to the uncertainty for investors. Public sector accountability should then be improved; in particular, the management capacity and accountability of the judicial sector needs to be strengthened. Sustained anti-corruption efforts are required and the power of oversight institutions should be reinforced.

... ensuring access to capital

The lack of funds is another main factor hampering innovation in Slovakia, especially for SMEs. In general, the uncertainty about the expected gains from innovation activities limits the access to credit and to financial markets. In Slovakia, the supply of finance for innovative activities, especially for businesses in the early phase of their development, is particularly underdeveloped. Banks require strict collateral and a high risk premium. Venture capital supply is weak. In 2003, the level of venture capital as a share of GDP was the lowest in the OECD. In 2008, according to the European Venture Capital Association, it

Box 3.3. Competition and innovation in the energy market

Innovation in the energy market is crucial to address environmental challenges and increase energy efficiency in particular. Low competition is a barrier to development of innovation in this sector (De Serres *et al.*, 2010). Incumbent companies are not encouraged to adopt energy-efficient technologies and to increase their productivity as they do not fear losing market share and not surviving the entry of new competitors.

In line with EU legislation, the Slovak energy market is being progressively liberalized. Many regulatory barriers to entry have been removed with the opening of the energy market in 2005 for non-household customers and in 2007 for households. Legal unbundling and partial privatization in the electricity and the gas sector was progressively completed. On the electricity market, the number of licenses issued by the Regulatory Office for Network Industries (RONI) has increased over the past few years (from 112 in 2005 to 335 in 2009) and four new companies entered the market for electricity provision to industry recently. However, competition has not developed strongly; the incumbent companies are still dominant, notably for energy production and energy provision to households.

The low level of competition could be partly explained by the regulatory framework which creates entry barriers to new entrants:

- Prices in network industries (electricity, gas, water supply, sewage collection, and other selected businesses) are regulated by RONI. The regulation is implemented in activities where competition is not developed to better reflect production costs and to prevent excessive increases in energy prices due to a low competition level. An incentive based regulatory method is used for regulation to create conditions for more competition. The RONI determines price caps for three years ahead based on the assessment of operating costs of the operators and inflation. This system is supposed to encourage firms to reduce their production costs below the price cap to increase their profit margin. However, the price setting lacks transparency and stability which may hamper long term investment in the energy sector and thus the development of competition, in particular for energy provision to households. For electricity, the prices for the connection to the grid, the connection of the new producers to the system, the system and support services, the access to the transmission and the distribution system, and the supply to the households are regulated. Managing network access prices to reasonable levels benefits competition by limiting fixed costs for the new entrants. The prices for distribution could be lowered further by using cost benchmarks, taking into account costs in neighbouring countries, in addition to price-caps. On the contrary, the price cap for energy supply for households could deter the entry of new providers and have negative environmental effects, because price signals to reduce demand are suppressed.
- The low competition level could also be explained by non-price discrimination of competitors by distribution network owners. Strengthening the regulatory framework would ensure and control transparency and non-discriminatory behaviour (OECD, 2005). The access conditions to the grid should be made easily available to potential market entrants (access prices and available capacity on network and international connections). Unambiguous and transparent rules to the enforcement of contracts *e.g.* on conditions to cancellation of contracts, on the allocation of connection costs between network operators and market entrants should be set *ex ante* by the regulator. Authorization procedures for the construction of new power plants should be streamlined. Care should be taken to avoid cross-ownership between companies operating on the energy market.

reached 0.05% of GDP, about one tenth of the European average (0.4% of GDP) and is also below the average of Central and Eastern Europe (0.2% of GDP). This may partly be explained by the fact that pension funds and insurance companies are not allowed to invest in private equity and venture capital.

Slovakia participates in the Joint European Resources for Micro to Medium Enterprises (JEREMIE) initiative, a European programme to improve access to finance for SMEs in the less developed regions of the EU. The project consists of providing guarantees for loans and venture capital finance to SMEs. It is intended to increase the volume of credit available to SMEs, but also, as the funds are allocated by financial intermediaries, to encourage these intermediaries to develop their SME lending capacity. The government plans to support highly innovative firms by providing “risk capital” as returnable financial aid. These initiatives to develop the venture capital market should be pursued further.

... improving labour mobility and skills availability

Adapting to a greener economy benefits from a flexible labour market, able to adjust to structural change. The transition to a greener economy will entail modifications of the sectoral composition of the economy which should be accompanied by the reallocation of workforce and the adaptation of available skills. Workers will have to switch to a new type of job and firms need to find an appropriate workforce. To address this challenge, Slovakia should improve the adaptive capacity of its labour market which is characterized by a high share of long-term unemployed in total unemployment, specifically in certain regions, and a job mobility level among the lowest in the OECD (OECD, 2010e).²⁷ Strict employment protection legislation may reduce the job reallocation in hampering the prices and wages adjustments and may also impede the voluntary job mobility of employees across sectors and occupations (OECD, 2010e). Low geographical labour mobility is also a barrier to job reallocation, in particular when the sectoral changes are located in specific regions. One of the obstacles to greater mobility is the lack of an appropriate rental housing market and the set-up of the housing allowance system which is limited to recipients of social assistance (and excludes workers) and does not take regional variations in housing costs into account (OECD, 2009c). Adjusting housing policy, in particular by removing obstacles to the expansion of a private rental market, and ensuring that job protection legislation is not excessive would improve job mobility.

Training and lifelong learning will play a crucial role in the adaptation of workers' skills to the needs created by these structural changes. Labour shortages may rise with the development of new green technologies and the structural changes related to climate mitigation policies. Training accounts for a small share of the active labour market programmes (4% of total ALMP spending, Chapter 1) and participation in non-formal job related education and training is relatively low by international comparison.²⁸ Training and life-long learning should be developed to avoid skills gaps in the labour market and better tailor to market needs. In this respect, a good functioning of the training market should be guaranteed, for instance by providing information on the quality and returns of the training and ensuring recognition of learning outcomes in the labour market and in the educational system. The efficiency of lifelong learning policies could also be improved by involving social partners in their design and implementation (OECD, 2006). Slovakia is implementing measures in this direction. In 2009, a law on lifelong learning created the framework for the accreditation and the assessment of training programmes. To better assess and anticipate the labour market needs in formal and non-formal learning and to

ease the recognition of competencies, Slovakia is establishing a National System of Occupations, which provides a description of occupations and the related qualification requirements in co-operation with the private sector. For this occasion, special attention should be given to “green skills” (i.e. ability to use green technologies and techniques) which should be included in the educational programmes.

Developing a knowledge economy by increasing human capital

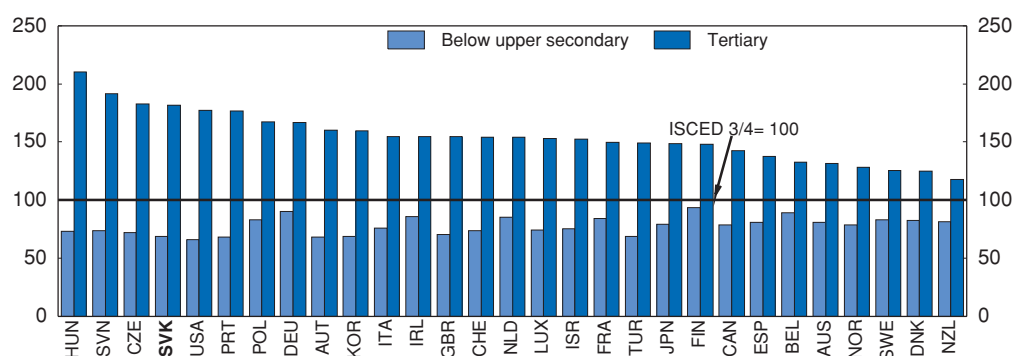
To seize the opportunities to exploit cleaner sources of growth and develop new green industries, jobs, and technologies, Slovakia has to encourage the development of a knowledge-based society. The innovative and absorptive capacity of the economy – i.e. the capacity to understand, assimilate and apply innovation – significantly relies on the quality of human capital formation, on the availability of researchers and of high skilled workers, on the efficiency of knowledge transfers and on the development of Information and Communication Technologies (ICT).

Level and quality of human capital formation is an important determinant for the innovative capacity of a country as it influences the potential for creation and diffusion of knowledge. In Slovakia, the level of human capital accumulation seems to be very weak (OECD, 2007). In particular, the level of tertiary educational attainment is low. In 2008, only 15% of the Slovak population had a tertiary education level (vs. 28% in the OECD on average). The wage premia earned by tertiary graduates compared to secondary graduates is high compared to other countries (Figure 3.14). This may partly reflect the low availability of tertiary educated workers in Slovakia. In 2009, 50% of employees in high-skilled occupations did not hold a university degree (OECD, 2010b). In addition, emigration seems quite high for the educated population in Slovakia. According to LFS data, no less than 7% of the labour force was abroad in 2008. Studies on brain drain found that a significant part of the educated population leaves the country to work abroad: in 2000, 16% of Slovak residents with tertiary attainment emigrated (Divinský, 2007). Some labour shortages due to high emigration rate are also observed in the health sector (Chapter 2).

Figure 3.14. **Relative earnings by level of education**

2008 or latest available¹

Upper secondary and post-secondary non-tertiary education (ISCED 3/4) = 100



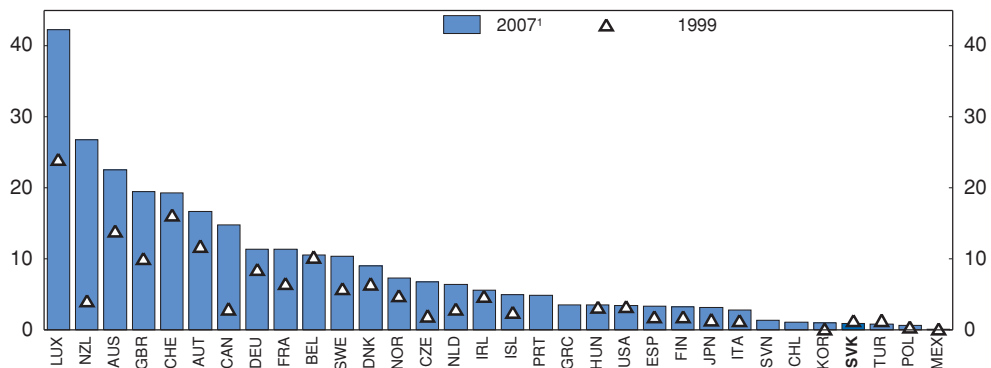
1. 2007 for Canada, Finland, France, Japan, Korea, Norway, Slovenia and Spain; 2006 for Italy, Luxembourg, the Netherlands and Portugal; 2005 for Austria, Belgium, Ireland and Turkey.

Source: OECD, *Education at a Glance 2010* (Table A7.1).

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The situation is getting better, as the number of tertiary students and graduates has increased sharply over the past few years, but a few indicators point out that the quality of the Slovak tertiary educational system should be further improved. Slovakia is below the EU27 average in terms of citation in academic reviews (ISI/Thomson Reuters citation index) and no Slovak universities appear in the Academic Ranking of World Universities. Besides, the Slovak higher education institutions are not internationally attractive: foreign students represent only 0.9% of the all tertiary enrolments in 2007 (below the 7.1% OECD average) and the share of foreign doctoral students is among the lowest in the OECD (Figure 3.15). Allowing state institutions to introduce tuition fees for full-time students, coupled with income contingent repayments, could help to increase the quality of tertiary education by increasing students' demand for quality improvements. The outcomes of the tertiary education system could also be improved by encouraging competition in the tertiary education. The entry of new institutions – including foreign institutions – should be facilitated by upgrading the licensing requirements. Finally, budgetary allocations to universities should be replaced with competitive research grants or at least rely more on educational outcomes as planned by the government.

Figure 3.15. **Share of foreign tertiary students**
2007 or latest available,¹ % of all tertiary students in host country



1. 2006 for Luxembourg, 2004 for the United States, 2003 for Ireland and 2002 for Mexico.

Source: OECD, Online Education Database (www.oecd.org/education/database).

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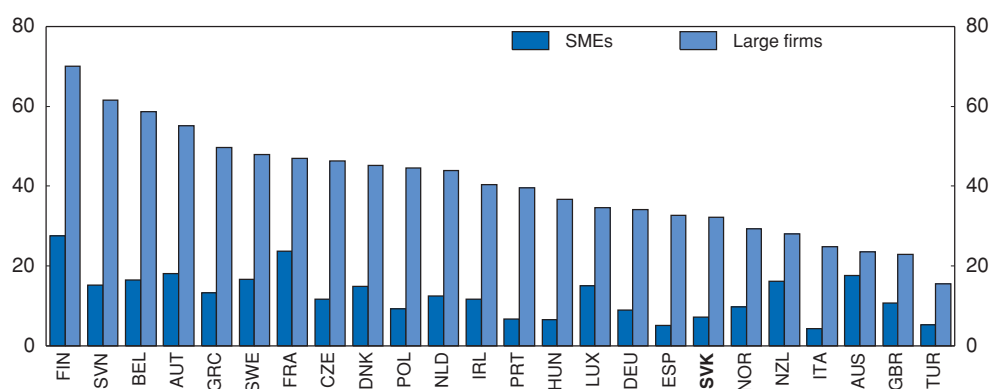
The number of researchers, closely linked with the level of innovative activity, is very low in Slovakia not least because the Slovak labour market is not attractive for these high-skilled workers. Less than 1 researcher per 1 000 employees works in industry and the total number of researchers per thousand of total employment was only 6 in 2008. This can be explained by the underdevelopment of innovative activities and thus by the low attractiveness of research positions: after five years of activity, 60% of doctorate holders in Slovakia remain under temporary contracts (OECD, 2009b). Also, doctorates holders are significantly better paid when they do not work as researchers (OECD, 2010b). Slovakia may not be attractive for foreign researchers because important barriers limit the immigration opportunities in this country.²⁹ No migration policy to attract high-skilled migrants is defined. A new Immigration and Naturalization Office (INO) which would centralize the responsibility for migration

issues might be created in 2010. The creation of the INO and the transposition of the EU Directive on the admission of highly skilled immigrants are good opportunities to revise the migration policy in particular towards high-skilled workers. For this occasion, the government should consider removing the barriers to human capital flows and facilitating high-skilled migration.

... developing knowledge transfers

A lack of information on research and of collaboration between the public and the private sectors in R&D activity may induce low innovation performance. Weak ties between industry and the academic sector hamper the use of basic research in the business sphere and disconnect academic research from market needs. Several indicators show that these ties should be reinforced in Slovakia. A low mobility of science and research workers between the public sector and industry and a small share of collaborating firms are observed (SME in particular) (Figure 3.16). The development of exchanges between the business sector and the academic sphere is one of the main objectives of the Slovak Innovation Policy. 45% of the budget of the Innovation Policy was allocated to the construction of regional innovation centres designed to foster information exchanges. The government should intensify support for co-operations by universities, research institutes and enterprises and encourage mobility of researchers between public and private institutions. The development of academic entrepreneurship that is based on technology developed within university laboratories should also be fostered by explicitly recognizing them as funding relevant output.

Figure 3.16. **Firms collaborating on innovation activities by size**
2004-06¹, % of all firms



1. 2006-07 for Australia and New Zealand.

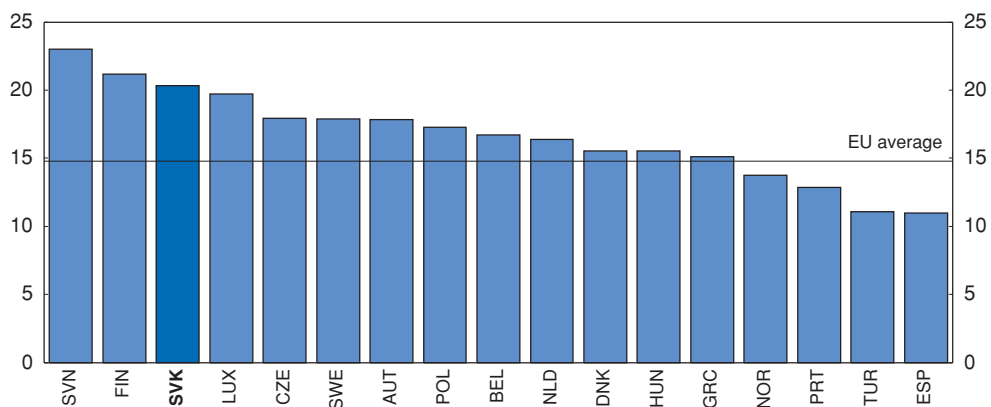
Source: OECD, Science, Technology and Industry Scoreboard 2009.

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Exchanges between firms foster the diffusion of know-how and create positive spillover effects. These links are difficult to develop because in sharing their knowledge firms could lose the benefit of their investments. The dilemma between technological diffusion and incentives to innovate could be addressed by developing knowledge markets and knowledge networks, encouraging cross-financed projects and fostering the use of patent pools.

International co-operation should also be encouraged, as it broadens knowledge inflows and allows sharing the cost of innovation development. The foreign collaboration in R&D is highly developed in Slovakia: 16% of business R&D spending is funded from abroad (OECD, 2009b) and more than 20% of firms are collaborating on innovation with foreign partners across Europe (Figure 3.17). Foreign direct investment (FDI) has been a channel of innovation diffusion and has contributed to technological transfer. Slovakia also benefits from foreign R&D centres collaborating with the domestic R&D organisations and universities. A national agency, the SARIO (Slovak Investment and Trade Development Agency) is in charge of developing the attractiveness of Slovakia as an R&D location. The agency provides information to foreign investors on the opportunities for R&D in Slovakia. To increase the potential contribution of foreign firms to eco-innovation, regulatory barriers to international exchanges such as discriminatory procedures towards foreign firms, should be removed. In particular, foreign firms should be allowed to have redress through regulatory authorities and regulations should be published in a manner accessible at the international level. More generally, the ties between domestic and FDI firms should be strengthened (for instance by fostering intermediate domestic supply) to ease knowledge diffusion and technological spill-overs, and to improve Slovakia's attractiveness for foreign investors. In addition, participation of Slovak R&D organisations in cross-border programmes such as European Union and interregional programmes remains weak and should be encouraged.

Figure 3.17. **Firms collaborating with foreign partners on innovation within Europe**
2004-06, % of all firms



Source: OECD, Science, Technology and Industry Scoreboard 2009.

StatLink  <http://dx.doi.org/10.1787/888932358865>

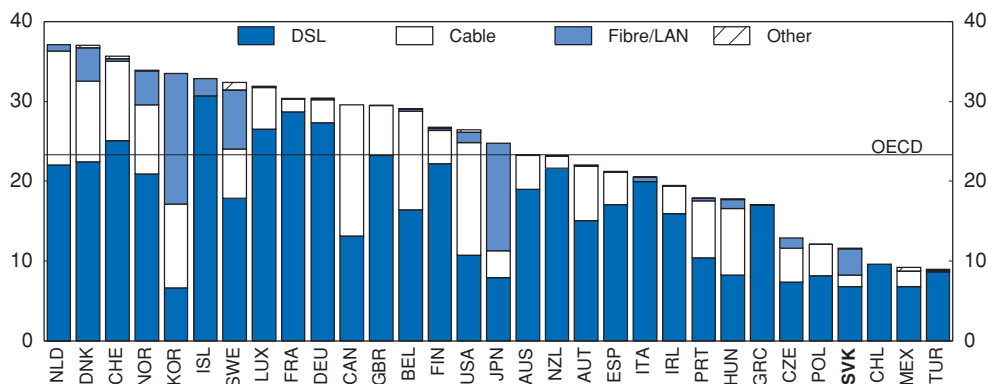
... and investing in ICT

Information and communication technologies (ICT) have the potential to increase innovation by speeding up the diffusion of information, improving the transfer of knowledge and technologies favouring networking among firms, reducing geographic limitations and increasing efficiency in communication. ICT may also increase productivity as it enables firms to restructure their organisations and to develop new

products and processes (OECD, 2004). Empirically, ICT use tends to raise the probability to innovate both in manufacturing and in services sectors (OECD, 2010b). ICT have also a specific impact on eco-innovation, as ICT systems enable an increase in energy efficiency of production and consumption, by product improvement (energy-efficient vehicle) or by creating entire systems to control energy consumption (smart electricity grids, transport management) (OECD, 2009d). For example, the losses of electricity during transmission could be lowered by the development of smart grids. ICT also influence consumption habits by facilitating the diffusion of information on the environmental impact of economic activities and polluting/green products. They can also have a direct impact on the environment (equipment production, use, end of life treatment) which should be considered when implementing their development.


Despite substantial progress over the past few years, access and use of ICT, broadband networks in particular, need to be developed further in Slovakia. Broadband penetration has increased sharply, but is still the fourth lowest in the OECD (Figure 3.18). The speed of the Slovak DSL extension is also relatively low compared to other catching up countries and its development is quite unequal across the regions. Between 2005 and 2006, the DSL subscriptions increased less than 20% in Slovakia, while they increase at over 60% in Czech Republic and Hungary. To promote greater broadband deployment and develop access to broadband infrastructure, Slovakia intends to better target the public funding on isolated areas not served by private operators. Slovakia should pursue its investment in network and ICT skills development without pre-empting private initiatives. Public intervention on these sectors should be assessed regularly to determine their efficiency and necessity. However, investing in ICT infrastructures will not be sufficient to ensure an efficient use of these technologies. A supportive environment for the development and growth of the IT sector still needs to be created. In particular, competition on the telecommunication sector should be ensured and ICT skill formation should be developed (OECD, 2005).

Figure 3.18. **OECD fixed broadband subscribers per 100 inhabitants, by technology**
December 2009



Note: The data presented in the chart below do not include fixed wireless subscriptions.

Source: OECD, *Broadband Statistics*, December 2009 (www.oecd.org/sti/ict/broadband).

StatLink  <http://dx.doi.org/10.1787/888932358884>

Box 3.4. Recommendations for a transition to greener growth

Addressing the challenges and making economic growth more environmentally sustainable

Pricing pollution by extending environmental taxation and removing harmful exemptions and subsidies

- Phase out the tax exemptions on energy and pursue their social goals by other economic instruments, such as financial compensation targeted on low income households.
- Extend environmental taxation; establish a clear, predictable and credible carbon tax in the sectors not covered by the EU-ETS and reform taxation of motor vehicles by setting rates depending on emissions and energy consumption.

Improving the framework of environmental policy and selecting the most efficient tools to foster environmental-friendly activities

- Strengthen co-ordination among administrative bodies by reforming the framework of environmental and energy policies. Centralize the determination, the implementation and the monitoring of these policies, while merging instruments and funds addressing the same issue.
- Better target the support to environmental-friendly activities by defining measurable targets and systematically carrying out evaluations. In particular, monitor the cost effectiveness of measures aiming at developing RES (feed-in tariffs).
- Review regulatory barriers to the renewable energy sources (RES) development in the solar and wind energy sector. Clarify the rules behind the allocation of certificates for solar plants. Reassess environmental rules limiting the installation of windmills by using international benchmarking.
- Phase out subsidies which can be replaced by other market-based instruments. For instance, remove tax exemptions on electricity produced from RES. Review the features of subsidies aimed at addressing specific market externalities. Replace subsidies for RES equipments by soft loans and complement them with an information campaign on the gains related to RES production or at least better target subsidies on credit-constrained households.

Creating a framework for eco-innovation

- Ensure a long term support to innovation and R&D by effectively increasing the weight of R&D in public expenditures, by better co-ordinating innovation policy across government bodies and by evaluating innovation policy regularly.

Developing efficient financial incentives and better protecting property rights

- Consider developing R&D activity by complementing the current financial support with tax credits and limit direct public subsidies to basic research or research far from commercial viability. Simplify application procedures for public funding and create clear conditions of eligibility for tax credits to avoid discretionary selection of projects.
- Strengthen the enforcement of property rights protection.

Improving the business environment

- Identify administrative burdens and establish a timetable for measures aimed at tackling the identified business barriers. Develop further the establishment of single contact points for firms and unifying procedures for the collection of social security contributions.
- Strengthen competition in network industries, notably in the energy market. Ensure that the price regulation does not deter the entry of new competitors, notably by improving the stability and the transparency of the price setting framework and reduce non-price discrimination.
- Ensure access to capital by pursuing initiatives to develop a venture capital market.

Box 3.4. Recommendations for a transition to greener growth (cont.)

- Improve skilled labour force availability by removing obstacles to labour mobility such as barriers to the expansion of a private rental housing market, by developing lifelong learning, by ensuring the good functioning of the training market and by including training in “green skills” (i.e. ability to use green technologies and techniques) in the educational programmes.

Developing a knowledge economy

- Improve the quality of tertiary education by introducing tuition fees for full-time students at state universities coupled with income contingent repayments, facilitating entry of new institutions, replacing budgetary allocations to universities with competitive research grants or at least making them rely more on outcomes.
- Remove barriers to labour flows at the national (e.g. between the academic and the business sphere) and international level. Facilitate high skilled migration.
- Intensify support for international co-operation, participation in cross-border programs, and cross-funding of projects, develop knowledge networks and encourage collaboration between universities, research institutes and enterprises.
- Pursue public investment in ICT infrastructures without pre-empting private initiatives and regularly reassess the efficiency and the necessity of these interventions.
- Develop competition in the telecommunication sector.

Notes

1. Emissions decreased in the energy sector (public electricity and heat generation in particular), agriculture, manufacturing industries (decrease in energy use) and services, but increased in transport, waste and industrial processes.
2. Energy intensity is measured as the ratio of total final energy consumption in Mtoe and GDP in 2000 USD PPP.
3. For instance, the national policy on air pollution, implemented since 1991, includes charges for basic air pollutants (NO_x, SO_x). The EU Directive 2008/1/EC on the Integrated Pollution Prevention and Control requires new industrial installations covered by the Directive (as middle and large scale energy units) to get an environmental permit and to use the Best Available Techniques (BAT).
4. The OECD data on CO₂ emissions from fuel combustion for 2007 confirm this finding (0.41 kg CO₂/GDP in 2000 USD PPP vs. 0.32 for the EU27 average).
5. This is partly because the less-costly options for the abatement, such as the replacement of old polluting technologies have already been exploited.
6. This result could be also partly due to a higher relative price of energy in Slovakia due to the Balassa-Samuelson effect.
7. Electricity and heat produced with oil and coal are more carbon intensive than gas and nuclear power. On average in the OECD, electricity and heat produced with coal create 903 g of CO₂ per kWh, 599 g for oil and 377 g for gas (Source: OECD, *Emissions per kWh of Electricity and Heat Output*, Edition 2009).
8. Electricity and heat production is ensured by Combined Heat and Power (CHP) plants and heat plants whose returns are generally higher than for electricity plants and whose yields are slightly better than in many other OECD countries.
9. Climate change may result in potential damages such as a rise in sea level, a reduced availability of resources and development of infectious diseases with a global negative impact on human wealth. The desirability of keeping the rise in global temperature below 2 degrees Celsius by reducing GHG emissions was recognised during the UN Copenhagen conference on climate change mitigation.

10. As an illustration, the negative macroeconomic effect of oil price shocks has been weaker in the 2000s than in the 1970s partly due to a decrease in oil intensity (Blanchard *et al.*, 2007). An increase in oil prices resulting in a general increase in energy prices has a significant impact on potential output (Cournède, 2010): an increase of oil prices from USD 50 to USD 80 is estimated to decrease real potential GDP by 0.7% in the euro area.
11. This figure is provisional and should be interpreted with caution. The Ministry of Environment, the Ministry of Finance and the Statistical Office are elaborating a comprehensive classification of environmental taxes and charges and are updating the data used in the OECD/EEA database.
12. Electricity, oil and gas prices are above the OECD average but coal price for households is significantly lower.
13. The government established the national energy efficiency target in line with the EU commitment: the EU Directive 2006/32/EC stipulates energy savings of 1% per year compared to the previous five-year average energy consumption. The intermediate national energy savings target until 2010 is set as energy savings of 3% as compared to average final energy consumption in the period 2001-05 and the long-term national energy efficiency target until 2016 is set as energy savings of 9% compared to the same reference level.
14. In the housing sector, the projects could potentially be financed by national funds such as SLOVSEFF, the State housing development fund (SFRB), the Programme for support of housing development, the subsidy system for elimination of systemic failures, and the EU funds through notably the Regional Operational Programme (2007-13) "Improving the thermal properties of building use for civil infrastructure". The same applies to RES with the Environmental Fund, the Programme for Promotion of Biomass and Solar Energy Use in Households, and three different EU funds (Operational programmes (OP) for Competitiveness and Economic Growth, OP Environment or Rural development programme).
15. Amendment to the Energy Act in 2010.
16. Existing subsidies for RES electricity in some countries exceed EUR 250 per ton of CO₂ abated for wind power and EUR 1 000 for photovoltaic equipments (Lawson, 2010), well above the price of carbon emission in the EU-ETS (between EUR 15 and EUR 30 per CO₂ ton).
17. No supply shortages and no increase in RES equipment prices have been observed in Slovakia after the setting up of the programme promoting the use of RES, probably because this policy has been launched during the economic crisis and was only slightly successful.
18. The impact on electricity prices is estimated by the Ministry of Finance at 10-12%.
19. The existing technologies are not relevant for all economic activities. For example, solar and wind are only appropriate for electricity generation (Lawson, 2010).
20. The OECD definition of eco-innovation is based on the *Oslo Manual* and drawing from other sources (OECD, 2010d).
21. Technology balance of payments measures international technology transfers (e.g. licence fees, patents, purchases and royalties paid, know-how, research and technical assistance, industrial R&D). The available data show that the bulk (over 60%) of such technology transfers in the majority of countries are between parent companies and affiliates, which reflects the central role of direct investment in the technology balance of payments. More details are available in OECD (2005), *Measuring Globalisation: OECD Handbook on Economic Globalisation Indicators*, OECD, Paris
22. The business financed R&D is more countercyclical than the total spending (the elasticity of the business R&D to the total spending is over 1), as in the majority of OECD countries (OECD, 2009b).
23. The IPO is a central state administration body responsible for the IPR protection and administration of international treaties. It provides public documentation and information on patent and trademark and carries out pre-diagnostic of industrial rights.
24. This finding is confirmed by the Executive Opinion Survey of the World Economic Forum which indicates that business executives do not perceive the IPR protection as strong in Slovakia (World Economic Forum, 2009).
25. Empirically, competition is positively linked with the level of investment (Alesina *et al.*, 2005), efficiency gains (Nickell *et al.*, 1997; Nicoletti and Scarpetta, 2003), and innovation performance (Aghion *et al.*, 2005; Griffith *et al.*, 2006).
26. Single contact points enable entrepreneurs to perform all administrative acts necessary to start and carry out a business at one single point, and could lower the weight of procedures and cost of obtaining permits to businesses.

27. In particular, job to job mobility of human resources in science and technologies is small: in 2007, less than 4% of employees changed jobs from one year to the next (OECD, 2010b).
28. In 2009, only 33% of firms offer formal training to their employees against 42% on average in the OECD (World Bank Enterprise Surveys).
29. A lot of procedures have to be achieved to get the right to work in Slovakia as non-EU national. The migrants must hold a work permit delivered by the Labour, Social Affairs and Family office and a residence permit delivered by the Slovak Foreign Police. Recent changes in the legislation ease the conditions of entry for intra-corporate transferees, investors and students somewhat (amendments to the Aliens Act on 1 January 2010), but they remain constraining.

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ANNEX 3.A1

Energy efficiency gains and rebound effects

A cost efficient development of energy efficiency could lead to an increase in consumption of energy and energy-intensive goods. This “rebound effect” occurs through different channels:

Energy efficiency decreases the relative price of energy, which stimulates energy consumption (substitution effect, the direct rebound effect).

- Energy savings increase the purchasing power of consumers, inducing a rise in energy consumption (revenue effect).
- Energy savings reduce production costs and improve price-competitiveness. The production of efficient technologies, products and services develops new green sectors and activities. Savings on energy spending increase liquidity and funds for investments in the importing countries. These different mechanisms foster potential economic growth, which creates new energy needs (multiplier effects).
- A decrease in energy demand may lower energy prices, make energy more affordable and reduce the prices of energy-intensive goods and services.

The rebound effects are difficult to measure. The direct rebound effect depends on the elasticity of the energy demand to prices which is related to the degree of demand saturation in energy services, the income level and on the importance of energy prices in economic decisions. In consequence, the effect varies between technologies, sectors, income groups and could account for between zero and 50%. On average, the literature finds a small to moderate direct rebound effect in developed countries (Geller, 2005). The indirect rebound effect is even more difficult to measure and no consensus emerges in the literature on its magnitude. The indirect rebound effects are more likely to appear when technologies used for general purposes are exploited (steam engines in the 19th century, electric motors in the 20th century) (Sorrel, 2007). The fourth effect (lowering of prices through decrease in demand) depends on the size of the country and is likely to be low in Slovakia.

As a whole, economic studies do not suggest that energy efficiency gains result in an increase in energy consumption. However they generally find a significant economy-wide impact: the rebound effects lower the expected energy savings by 10% at least and are particularly high in some sectors. Energy efficient technologies in energy-intensive sectors could lead to rebound effects exceeding 50% (Sorrel, 2007). These effects should be considered when defining an energy policy strategy and assessing its cost-effectiveness. High rebound effects must be also avoided by limiting the decline in the relative energy cost when efficiency improves. Other kinds of policies aiming at changing consumer preferences and increasing the energy prices are necessary to limit the rebound effect and limit waste in resources.

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