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Information about the latest as well as previous Surveys *and more information about how* Surveys *are prepared is available at:* www.oecd.org/eco/surveys.

BASIC STATISTICS OF ESTONIA, 2009

LAND

Area (km^2)	45 227	Major cities (1 000 inhabitants)	
Agriculture (%)	18	Tallinn	399
Forest, 2008 (%)	47	Tartu	103

PEOPLE

Population (1 000)	1 340	Employment (1 000)	596
Inhabitants per m^2	30	Agriculture (%)	4
Natural increase in population (1 000)	–0.3	Industry (%)	32
Net immigration (1 000)	–1	Services (%)	64

GOVERNMENT

Public consumption (% of GDP)	22	Elections	
General government total revenue (% of GDP)	43		March 2007
General government deficit (% of GDP)	–2		March 2011
Public debt, Maastricht definition (% of GDP)	7		

PRODUCTION

GDP, current prices (billion EUR)	14	Origin of value added (%)	
GDP per capita (USD, current prices)	14 373	Industry	26
Gross fixed investment (% GDP)	22	Services	71

FOREIGN TRADE

Exports of goods and services (% GDP)	65	Imports of goods and services (% GDP)	59
Main exports (% of total merchandise)		Main imports (% of total merchandise)	
Manufactures	33	Manufactures	27
Machinery and transport equipment	26	Machinery and transport equipment	25
Mineral fuels, lubricants and related materials	16	Mineral fuels, lubricants and related materials	19

CURRENCY

As of 1 January 2011, Estonia's monetary unit is the euro. Previously the Estonian kroon (EEK) was pegged at 15.65 currency units per euro.

Executive summary

Estonia continues to show a remarkable determination in policy making. It has established a business friendly regulation, avoided fiscal deterioration during the crisis and made it into the euro area, despite being hit by an accumulation of negative external shocks. Helped by strengthening foreign demand and increased competitiveness the Estonian economy is recovering from a deep recession, which drove the unemployment rate up to nearly 20% and left an overhang of private-sector debt. The main policy challenges are now to: avoid cyclical unemployment becoming structural; strengthen the fiscal framework; improve the framework of bankruptcy procedures to deal with non-performing loans; reap efficiency gains in government operations; and make more out of globalisation as a sustainable driver of growth.

The large increase in unemployment generates additional workload for the recently reformed public employment service. It is important that adequate, appropriately-skilled resources are available for this task. In terms of active labour market policies, greater emphasis on training measures is necessary to support the reallocation of workers.

Current procedures to deal with bad loans are too costly and cumbersome. Personal bankruptcy procedures should allow more flexible and out-of-court restructuring plans. Corporate bankruptcy procedures require very specific expertise, which could be provided by a specialised court.

Owing to government policies, the fiscal deficit and public debt have remained low. However, the pro-cyclical bias of fiscal policy should be addressed by introducing multi-year public expenditure ceilings. An independent fiscal institution should provide expert input for fiscal policy decisions and assess outcomes. The sustainability of old-age income replacement relies on low replacement rates, which risk providing insufficient protection against poverty.

Estonia has a large network of very small municipalities, making the provision of government services inefficient and of variable quality. Therefore it should follow the example of other countries in the region and establish a more efficient municipal network through mergers and joint provision of services.

Relatively high out-of-pocket payments for healthcare, especially for pharmaceuticals and dental care, risk excluding low-income households from appropriate healthcare. Additional spending will become necessary because remuneration in the healthcare sector is relatively low. Fiscal room for dealing with these spending pressures could be created by further rationalising the hospital network and improving its cost efficiency. Strengthening incentives for wider use of cheaper pharmaceuticals would reduce the burden of private health care expenditures.

Estonia is an open economy with a business friendly regulatory environment. Nevertheless it has not fully reaped the benefits of globalisation. Enterprise support should therefore focus more on making firms more productive and overcoming size constraints. Furthermore, an active approach to better market the advantages of Estonia as a location for export-oriented foreign investors appears warranted.

Assessment and recommendations

The Estonian economy went through an extreme cycle of record-breaking growth up to 2007 and a precipitous decline in 2008 and 2009. Boosted by foreign demand and increased competitiveness, the economy has bottomed out, and is now generating some growth again. Unemployment is still high but positive inflation has already returned after a short interval of mild deflation. Unsustainable current account deficits have been corrected, although this improvement has not yet been tested by a solid recovery of domestic demand. This *Survey* focuses on the legacy of this major recession and the challenges going forward in the form of: the risk of a steep increase in structural unemployment; a high level of non-performing loans; the macroeconomic policy challenge of avoiding another boom-bust cycle in the course of euro adoption; securing the efficient use of public resources; and making the most out of globalisation. In order to keep the economy on a sustainable growth path in the future, work should be carried out towards developing new macro-prudential tools tailored to Estonia's small open economy so as to better deal with a situation of excessive credit growth.

The extreme increase in unemployment risks becoming structural

Estonia has a flexible labour market; overall employment protection levels are amongst the lower ones in the OECD and nominal wages declined during the crisis. These strengths should help Estonia avoid current unemployment becoming structural. However, the risk of this is considerable, both due to the size of the unemployment problem and its structural aspects. Of the 100 000 jobs lost (a 16% employment decline) from the start of 2008 to mid-2010, around 80 000 were in the construction and manufacturing sectors. Many of these jobs, in particular in construction, will not reappear. This suggests that, despite the possibility of cross-border work in Finland, without retraining, a high proportion of the current unemployed are likely to become structurally unemployed. Such high unemployment levels, were they to become entrenched, might lead to ongoing high levels of hardship and poverty, and threaten social cohesion. Spending on training of the unemployed quadrupled from 2008 to 2009, but this still left its share in GDP a bit below the 2008 OECD average. *Participation in activation measures and training should be compulsory where a need is identified by a Public Employment Service (PES) counsellor. For those unemployed identified as having Estonian language difficulties as an obstacle to finding a job, language training should be prioritised*. A new training scheme, in which the unemployed can use a voucher to purchase training, has been tried out through to the end of 2010. There is evidence that training targeted to individual needs tends to have better results than general training

programmes. *The expansion of the voucher training scheme is welcome and should be swiftly implemented to help ensure training choices are tailored to individual needs.*

The PES has come under significant pressure, even with the rise in staff numbers. PES clients account for only a small proportion of new hires and the proportion of registered unemployed that find a job using PES assistance is low. Overall registration at the PES is also low by OECD standards. The *2009 OECD Labour Market Review of Estonia* found serious shortcomings in the resources available to the PES, including physical space and IT resources. Progress is now being made to improve IT systems. *To meet these challenges, the financial and human resources of the PES should be expanded as much as is feasible. Consideration should be given to the following recommendations:*

- *developing a network of mentors (for example, retired business people, accountants) who could act as advisors in business start-up schemes;*
- *exploring the scope for out-sourcing programmes to help alleviate pressure on the PES and tap into private sector expertise; this would require building competence in the PES to effectively contract out;*
- *further developing the PES Internet portal to enhance employers' ability to regularly notify not just current vacancies but also the kind of skills shortages they anticipate.*

Already high labour market flexibility can still be further improved at the margin. There is a very high proportion of full-time employment in total employment. The new Employment Contracts Act, effective from mid-2009, has reduced the risk of dualism by easing employment protection on permanent contracts. The new Act also made it easier to use fixed term contracts, but imposed the obligation for employers to pay for the loss of income to the end of contract term in cases of an early termination (except in the case of bankruptcy). While recognising the political economy obstacles, consideration should be given to putting a cap on *termination payment obligations for fixed-term contracts.*

It is unlikely that the private sector by itself will be able to generate enough jobs in the short term to absorb the large pool of unemployed. Therefore, at least some temporary and well targeted wage subsidies should be maintained. There has already been some reduction in the labour tax wedge for low paid and disadvantaged groups. However, the labour tax wedge in Estonia is still relatively high and there is additional scope to reduce the tax burden on labour in general and in particular for low wage workers. Consideration should be given to cutting social security or unemployment contribution rates.

Legal procedures should be streamlined, notably to deal with non-performing loans

The boom-bust credit and asset price cycle, exacerbated by global financial developments has left a sizeable legacy of debt overhang. Estonia's non-performing loans (NPLs) ratio of 5.2% is high and similar in magnitude to those in Spain and the United States in 2010. NPLs peaked in 2010 and are likely to continue to fall providing the economy continues to recover, but, this would still leave the burden of reducing the current stock. If left to linger and/or resolved inefficiently, NPLs might unduly constrain both credit supply and demand and hence impede credit growth and the recovery. More generally, inadequate legal procedures for debt recovery and bankruptcy risk constraining economic dynamism.

Debt recovery is currently decentralised, being creditor-led by the banks, which imposes some additional burden on them. High levels of NPLs will put pressure on formal bankruptcy procedures, which appear to be inefficient by international standards. Reforming these procedures would not only improve the efficiency of resolving NPLs but

also contribute to making Estonia a more attractive place to invest by enhancing the legal environment for firms. The recently legislated Debt Restructuring and Debt Protection Act provides for an out-of-court negotiated, but court-approved, debt restructuring procedure for individuals, including allowing a reduction in principal payments. On the corporate side, an international case study suggests that around 50% of the residual value of a company would be spent in formal debt recovery procedures in Estonia compared with less than 10% in Finland. It also takes around 3 years on average for insolvency procedures to be completed in Estonia compared with around 1 year or less in the best performing OECD countries, including Finland. Debt restructuring procedures allow outside expertise, but it is almost never used because debtors must pay for the experts and they rarely have the funds to do so. The decision to liquidate or rehabilitate a company requires specialised legal and economic/financial knowledge, which many judges do not possess. Liquidators are in short supply and not subject to sufficiently well defined obligations, allowing them to act in an arbitrary way. Finally, company directors are often too late in petitioning for bankruptcy, waiting until recoverable funds are almost exhausted. To improve foreclosure and bankruptcy, consideration should be given to the following recommendations:

- *implementing the debt restructuring procedure for individuals;*
- *establishing a specialist bankruptcy court with expertise in debt restructuring and bankruptcy issues;*
- *ensuring the court has the capacity to determine whether company directors have met their obligations to petition for bankruptcy;*
- *developing quantitative indicators as a stop-gap measure to determine when company directors have met their obligation to file for bankruptcy;*
- *giving courts the power to require the creditor to pay for experts, particularly in more intricate corporate cases.*

The crisis put a severe strain on public finances…

Estonia has earned a strong reputation for fiscal discipline. In practice, prior to the crisis the Estonian government had followed a strict "balanced budget or better" rule, and has never been subject to the Excessive Deficit Procedure for EU member countries exceeding the ceiling of the Stability and Growth Pact. Gross public debt was lower than in any OECD country at 3.7% of GDP at the end of 2007, well below the level of government financial assets. However, with the benefit of hindsight, it is clear that the structural fiscal position deteriorated during the boom preceding the crisis, as cyclical revenues were used to finance an increase in structural public expenditure. This fiscal loosening occurred to a large extent due to the overestimation of the structural component of revenues, as in several other OECD countries, linked in turn to overoptimistic assumptions of potential output. When the crisis struck fully in 2009, the spending overhang coupled with the working of automatic stabilisers on the revenue side would have led, under unchanged policies, to a large fiscal deficit.

… and prompted a sizeable fiscal adjustment

In the light of limited market financing options and the need to support confidence in the currency board, the government decided to implement a large-scale fiscal consolidation

and to move towards euro adoption as quickly as possible. The latter decision was an important factor in determining the scale of consolidation, as the general government deficit had to be kept under 3% of GDP to fulfil the budget criterion for euro entry. Several fiscal consolidation packages were approved during 2008-09, amounting to about 9% of 2009 GDP in total. Part of the improvement of the budget balance in 2009 was achieved by temporary and one off-measures, such as extra dividends from state-owned enterprises and the suspension of state contributions to the second private pension pillar. The accelerated use of EU structural funds partly offset the negative impact of fiscal tightening but there is little doubt that this pro-cyclical policy aggravated the downturn, although quantitative estimates of fiscal multipliers in a very small, open economy are surrounded with uncertainty. At the same time, meeting the euro adoption criteria under such difficult circumstances generated positive confidence effects. Anyway, this policy has left Estonian public finances in a strong position. Indeed, reaching the medium-term objective of structural balance will require comparatively little additional effort. At the same time, sustainability of old-age income replacement relies on low replacement rates, which risk providing insufficient protection against poverty. Protecting the second pension pillar is therefore important. *The government should ensure that the contributions for the second pension pillar are higher in the near future to counterbalance the suspension of contributions in 2009-11 and publish a detailed old-age income replacement sustainability report.*

The crisis highlighted the need for more vigilance concerning macroeconomic imbalances

The strong commitment to a "balanced-or better budget" was not sufficient to prevent the erosion of the structural position in the boom preceding the crisis. Economic policies in general should have paid more attention to the accumulation of large macroeconomic imbalances, such as large and widening current account deficits, surging housing prices and the expansion of private debt. The crisis emphasised that fiscal policy should be viewed in a broader context of macroeconomic developments.

Fiscal rules and institutions need to be strengthened to make fiscal policy more cyclically neutral

To address these challenges and further strengthen fiscal performance, the budgetary framework needs to be enhanced with a well-designed fiscal rule (consistent with the Stability and Growth Pact) that would help to attenuate, rather than amplify, the cycle. This is particularly important in the absence of independent monetary policy.

The recent legislative proposal to enshrine the balanced budget requirement into law would reinforce fiscal discipline, but do little to address the issue of pro-cyclicality. A target for the structural balance is a useful benchmark for fiscal policy in the medium-term, but the difficulties of accurately assessing the cyclical position of the economy and, therefore, estimating the structural balance limit the effectiveness of such a target for guiding fiscal policy. Nevertheless, assessing the cycle is critical for fiscal policymaking and *the government should therefore further augment its work on the estimates of the structural balance and publish more detailed information about the underlying fiscal position, reflecting associated uncertainties.*

A public expenditure rule is likely to be helpful by restraining expenditure growth during an upswing. Such rules are easy to implement and monitor, and have counter-cyclical properties by allowing the full working of automatic stabilisers on the revenue side, where the stabilisers operate. *The budgetary framework should thus be enhanced with multi-year expenditure ceilings, which also largely take account of tax expenditures. When setting up the ceilings, the cyclical position of the economy should be taken into account in order to ensure the structural budget balance in the medium term. The rule-based framework would be further strengthened by establishing an independent fiscal institution to provide expert input for the budget preparation, assess budgetary outcomes and act as a "fiscal watchdog". These tasks could also be assigned to an existing independent institution.* Nevertheless expenditure rules do not prevent pro-cyclical changes in the tax system, which characterised fiscal policy in Estonia in the last cycle. While revenue-neutral reforms, which make the tax system more growth-friendly, are welcome, tax reductions should be assessed in terms of their cyclical appropriateness and, relatedly, their effect on fiscal sustainability.

The tax system can be enhanced to support fiscal consolidation and economic growth

Estonia's tax system is simple and transparent. The efficiency of the tax structure can be further improved by reducing labour taxes and compensating the revenue shortfall with less distorting taxes.

- The VAT system is relatively efficient, but compliance suffered during the recession. *VAT efficiency can be further improved by strengthening administration, phasing out exemptions and by applying the standard rate to all goods and services for which the reduced rate is still in place.* There is also scope for increasing the standard rate, which is below the rates prevailing in Nordic neighbours in particular.
- Property tax receipts are lower than in all OECD member countries. Currently only land, and not buildings are taxed; land valuations are infrequent and are now out of line with market prices. *The government should increase the share of property taxes by bringing land valuations in line with market rates. Consideration should also be given to introducing a property tax on buildings.*
- Well designed environmental taxes both raise revenue and address environmental challenges. The share of environmental taxes in GDP has increased over the recent years and is above the OECD average, but below the average for the EU. Estonia does not impose a tax on the use of motor vehicles (except for heavy vehicles), nor on their registration. This is unusual and not in line with the environmental objectives, as the government itself recognises in its Ecological Reform Programme. *The government should continue with ecological tax reform, pursuing both environmental and revenue-raising objectives. It should consider introducing a tax on the use and possibly also on the registration of motor vehicles, differentiated by the air pollution and energy consumption characteristics.*

Public spending efficiency needs to be raised

The two spending areas examined in this *Survey* are health care and local government, both of which are experiencing strain as a result of falls in budgetary revenues. Healthcare will be particularly susceptible to rising expenditures as a result of population ageing,

increasing income levels and a global tendency for health costs to rise relatively quickly. Fragmented local governments in Estonia are very financially dependent on the central government, and have little incentive to provide efficient and high quality services.

Healthcare reforms could bring better outcomes and provide more cost efficient services

Estonian healthcare system performs relatively well, yet in terms of life expectancy it lags behind and there is scope for efficiency improvement. Total health spending at 6.1% of GDP is well below the OECD average of 9% of GDP. However, additional spending pressures will rise from convergence of currently relatively low wages in the sector compared to some neighbouring countries. The division of spending between public and private resources (out-of-pocket payments) is at OECD average levels, with approximately three quarters coming from public sources and one quarter from households. OECD analysis suggests that if Estonia moved towards the efficiency frontier defined by OECD best performers considerable gains could be achieved in terms of life expectancy while maintaining the current level of resources.

Current low pay and working conditions in the health care sector are not sustainable

While the number of practicing physicians per head of population is just above the OECD average, nursing staff per head population is well below. Estonia suffers from the close proximity of the Finnish market, in which the attractiveness of better remuneration is boosted by relatively low language barriers; better paid jobs outside the healthcare sector also make it difficult to attract people to the sector. Moreover, the tradition of a doctor-centred system is still prevailing, when more medical tasks could be carried out by well qualified nursing staff thus making them more cost efficient. With the economic downturn, migration pressures have reportedly eased somewhat, but upward pressure on health-sector wages can be expected. *Existing remuneration and working conditions for health care professionals should be reviewed with a view to attracting adequate staffing, in particular in the countryside. Fiscal room to meet these spending pressures should be created by efficiency gains in the health care sector, in particular rationalisation of the hospital sector and better optimisation of care by boosting the role of general practitioners.*

The hospital network can be rationalised with more emphasis put on primary care

Estonia has a national health system with a single state insurance fund and almost universal coverage. Family doctors serve a partial gate-keeping role, but as hospitalisation rates from some parts of the country show, the performance of primary care could be improved. A network of hospitals is owned either by the state or local municipalities. Healthcare is financed from a social tax (13% on wages) and transfers from general taxation. The system has been streamlined significantly but further scope for rationalisation in the hospital network remains. *To ensure consistent quality of care and cost efficiency, the plan for active treatment hospitals should be updated in the light of changing needs and settlement patterns and the authorities are currently working on it. Given the small size of the Estonian*

healthcare market, international co-operation might be an opportunity to improve the efficiency of the system by reaping scale economies and specialisation opportunities but also for establishing quality benchmarks. Also, prevention programmes can play an important role in containing future spending pressures.

Healthcare may become less accessible due to high out-of-pocket payments

Out-of-pocket payments, both fees and co-payments for drugs, have grown significantly over time and have become regressive, with the largest burden falling on single pensioners. There is no cap on the payments as such, but higher spending qualifies for additional partial reimbursements. Access to dental care, which is not covered for adults, has been identified as the most problematic issue in terms of financial accessibility. *Consideration should be given to introducing a means tested cap on out-of-pocket payments. Access to adequate healthcare and in particular dental care by financially distressed households should be ensured.*

Wider use of less expensive medicines can ease the burden of private spending

Pharmaceutical expenditures are high compared to other EU countries and represent the largest share of out-of-pocket payments in Estonia. A number of studies point to low use of the least expensive drugs in Estonia. To tackle this issue, the authorities passed a decree in March 2010 obliging pharmacies to offer the cheapest drug and have launched a welcome public campaign to enhance awareness of the least expensive and generic drugs. Yet, anecdotal evidence shows that the cheapest drug is not always available and lack of competition in the pharmaceuticals market might be to blame. Doctors are already required to prescribe only active substances (rather than brand name drugs). In addition, *the authorities should also require the pharmacies to dispense the cheapest pharmaceuticals. This should be followed up by monitoring prescribing and dispensing patterns, facilitated by the newly introduced e-Prescription system; disseminating information on best practices for physicians and pharmacists; investigating those that deviate excessively from norms. Contracts with the national health fund for non-complying providers should then be reconsidered. Moreover, given the smallness and structure of the pharmaceutical market, the authorities need to remain vigilant to ensure competition and explore possibilities to increase the supply of cheaper generics.*

Local government spending can be better organised

All municipalities are responsible for the same set of public services regardless of their size, creating concerns, at both the central and local level, about the adequate capacity to ensure quality and efficiency. The central authorities have attempted to reduce the number of municipalities, most recently in 2009, but with little success. *Currently fragmented local government units should either be merged or required to co-operate for efficient service provision. Consideration should be given to imposing minimum population requirements for provision of services and reviewing the existing grant system from the central government. Tightening the equalisation formula is another option. Furthermore, developing indicators to monitor the quality of services could help to build momentum for further reform.*

Currently, local governments have only limited revenue raising opportunities and about one half of their revenues come from transfers from the central level. Matching revenue raising and spending responsibilities more closely would create better incentives for management of local issues and enhance accountability of local governments. It would also create an incentive for growth-oriented economic and fiscal policies, as municipalities could reap the benefits of their initiatives through increased tax revenues. Hence municipalities should be given more scope to raise revenue, for instance by allowing greater freedom in rate and base setting for the land tax.

Economic openness and a business friendly regulatory environment should be maintained

Estonia has a reputation for maintaining a market oriented, business friendly and open regulatory environment. Nevertheless, in contrast to some other new EU member countries, the export sector has not gained as much market share since EU accession. The productivity gap has been reduced considerably, but is still responsible for the considerable difference in income per capita relative to the EU27 average. The outlook for a ready absorption of laid-off construction workers and new jobs for uncompetitive manufacturing workers is not very promising , warranting policy action. *While Estonia's position as a business-friendly regulatory environment should be maintained, it is nevertheless worthwhile to deepen discussions to find strategies for how to develop comparative advantages in order to boost export market share and make most out of globalisation.*

The business friendly environment should be enhanced with better targeted support programmes

Estonia has not been as successful as other market friendly Central and Eastern European economies with increasing export market shares, despite an overall business friendly regulatory environment. Current programmes need to be made more effective and targeted by better co-ordinating them behind the common goal of higher productivity, which will also help enterprises to more successfully reap benefits from globalisation. *Providing international supply chains with ready-to-use business infrastructure, especially in areas with high unemployment, would give local firms better opportunities to enter such supply chains*. Being a very small economy the success of small firms is decisive for reaching overall goals. Developing firm clusters would promote networking and co-operation among small firms, and would be particularly valuable in enhancing outputs. *Consideration should be given to promoting clusters by providing financial support for start-up costs*. EU member countries are obliged to regularly review regulation with respect to effectiveness and compliance costs. *In this context it would be useful to extend regulatory impact analysis to existing regulations and introduce an* ex post *assessment of new regulatory interventions*. Experience in other OECD countries shows that the cost of regulatory compliance is particularly high for SME, and that access to innovation networks and financing is hampered by the lack of own funds. *Adequate seed capital should be made available by developing a local capital venture market*.

Growth can be promoted through high technology

Considerable support for innovation and globalisation activities is channelled through EU structural funds but is subject to criticisms of being overly bureaucratic. In particular, grants are used, rather than tax incentives, and there is a tendency to channel support into "high-tech". In order to avoid a not very promising "picking winners" strategy, *more consideration should be given to introducing tax incentives for R&D. The sectoral basis of support programmes should be broadened to include those non-high-tech areas that could benefit from high-tech inputs in order to contribute to closing the productivity gap.*

Enhancing skills and human resources

High growth and a rapid pace of convergence must rely on a skilled and flexible labour force. While employment protection is light and work incentives remain high, the education system is still tilted towards soft sciences, which were in high demand during the boom years. By contrast, manufacturing and engineering appear to be unattractive. Completing the pedagogic and curricular reforms to reduce drop-outs and enhance secondary education completion will be important in this context. *More consideration should be given to financial incentives to encourage entry into scientific disciplines to foster the spread of skills needed for a "knowledge-based" society.*

In this context it should be explored whether the distribution of scholarships and free study places is adequate. Furthermore, consideration should be given to better aligning funding of free study places with the priorities needed for a knowledge based society. It is not obvious that the split in fully financed free study places and fully privately financed study places is optimal from the point of view of providing the right incentives to engage in higher education. Offering study places with mixed financing could be an option. In this case, loans with income contingent repayment schemes should be offered to cash-constrained students. Vocational education school systems should be more integrated into mainstream education. Providing the right education and skills to the population will be a crucial determinant in establishing a sustainable high growth path from here on.

Chapter 1

Emerging from the recession

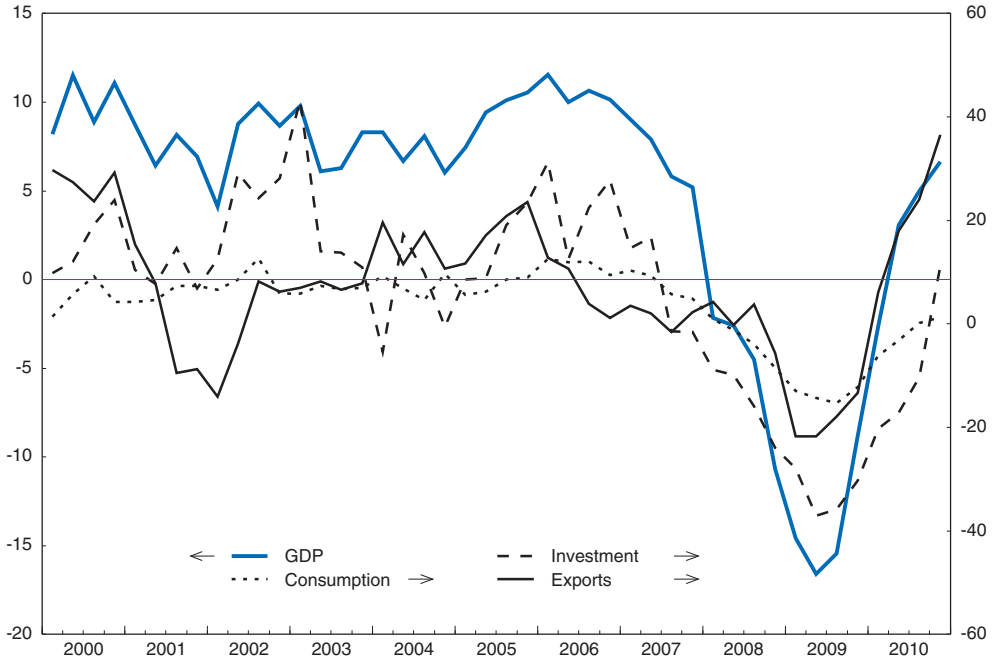
In the wake of an enormous boom and bust cycle, Estonia faces the challenge of ensuring the nascent recovery that began at the end of 2009 broadens out into a sustainable return to high growth rates. Such a return cannot be taken for granted, not least because the economy faces significant restructuring challenges following the construction bust. Households need to deleverage, bad debts wait to be dealt with and policy has an important role to play in fostering a return to high growth rates. This will require Estonia to tackle the significant fallout from the severe recession, including a marked rise in non-performing loans and high unemployment. If not dealt with adequately these factors may respectively impede credit growth and result in a permanently higher rate of unemployment that would undermine the recovery. Progress is being made in resolving non-performing loans but procedures are overly expensive, slow and bureaucratic. Estonia's labour market is flexible but serious skills and jobs mismatches threaten to make the large increase in unemployment structural. It will be important to continue improving and expanding training tailored to individual needs as well as the efficiency of the public employment service's job matching capacity. Labour tax cuts targeted to the low-paid would help to boost labour demand for those whose skills will be difficult to upgrade quickly. Once established, maintaining high growth path will require improving macroeconomic management tools to deal better with the hazards of irrational exuberance and excessive credit growth.

The boom-bust cycle has left Estonia with serious challenges

The current economic challenges Estonia faces are heavily shaped by a massive boom and bust cycle from 2005 to 2009 (Figure 1.1). Fuelled by a foreign financed credit and asset price upsurge, the economy experienced a domestic demand and, particularly, construction-led period of overheating from 2005 to 2007 that saw inflation rise sharply. Labour and skills shortages generated a rapid leap in unit labour costs.

Figure 1.1. **GDP, domestic demand and exports**

Annual growth, volume, %



Source: OECD, *National Accounts Database.*

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By the end of 2006 the real estate market showed signs of peaking and the economy slowed sharply in 2007. The economy plunged into a deep recession at the beginning of 2008. This was compounded by the global financial crisis and collapse of world trade that began in earnest in the second half of 2008. Estonian GDP fell by 20% and the unemployment rate rose from 4.1% to a peak of close to 20% in early 2010. Spurred by a pick-up in foreign demand and increased cost-competitiveness, an export-led recovery has been underway since late 2009. Estonia adopted the euro on 1 January 2011, which was achieved through a remarkable fiscal consolidation effort of over 9 percentage points of GDP (Chapter 2), which held the fiscal deficit below 3% of GDP (Table 1.1).

Table 1.1. **Economic projections**
Percentage changes, volume (2000 prices)

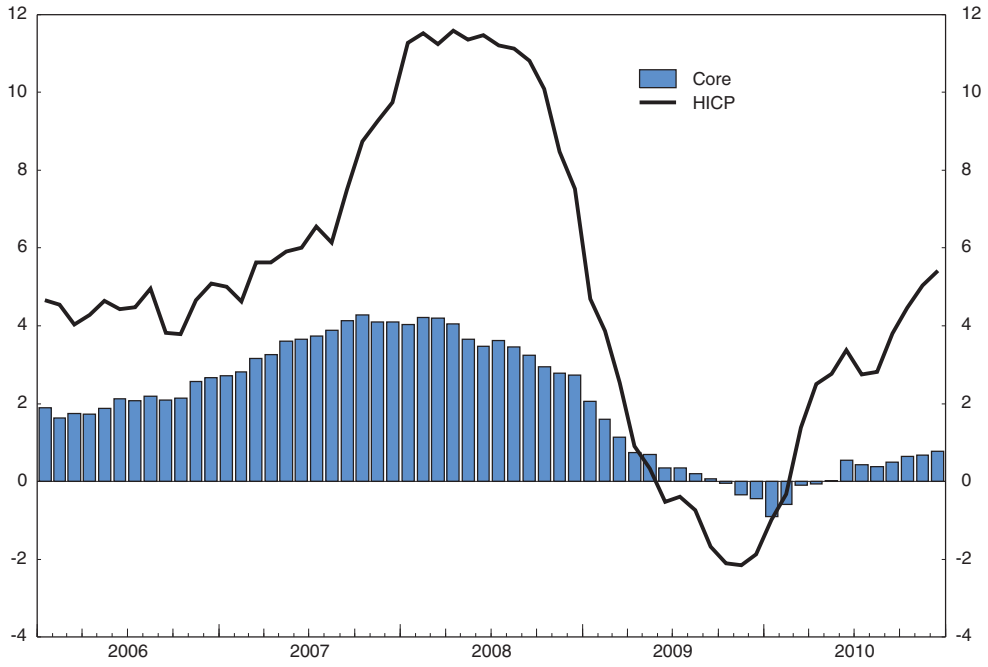
	2007	2008	2009	2010	2011	2012
GDP	6.9	–5.1	–13.9	3.1	3.4	4.1
Private consumption	8.6	–5.4	–18.4	–1.9	1.8	4.3
Government consumption	3.9	3.8	0.0	–2.1	1.3	1.5
Gross fixed capital formation	6.0	–15.0	–32.9	–9.2	6.1	11.2
Final domestic demand	7.0	–7.1	–19.0	–3.6	2.5	5.1
Stockbuilding[1]	3.0	–4.1	–3.4	4.5	0.0	–0.1
Total domestic demand	9.6	–10.5	–22.1	1.1	2.5	4.9
Exports of goods and services	1.5	0.4	–18.7	21.7	10.0	8.1
Imports of goods and services	7.8	–7.0	–32.6	21.0	10.1	9.4
Net exports[1]	–5.4	5.7	11.3	1.7	0.6	–0.5
GDP deflator	10.5	7.2	–0.1	1.5	1.8	2.0
Memorandum items						
Consumer price inflation	6.6	10.4	–0.1	3.0	3.4	2.5
Core inflation	6.1	6.2	0.9	0.4	1.6	2.6
Current account deficit[2]	–17.4	–10.7	4.4	3.6	4.3	2.8
General government financial balance[2]	2.5	–2.9	–1.8	–1.2	–1.9	–2.4
General government financial liabilities[2]	7.3	8.3	12.3	7.9	9.4	11.6

Note: 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*).
1. Contributions to changes in real GDP (percentage of real GDP in previous year), actual amount in the first column.
2. As a percentage of GDP.
Source: OECD, *OECD Economic Outlook 88 Database*.

The economy is showing signs of recovery…

Estonia's export markets recovered rapidly in 2010 and export orders continued to grow very strongly at the end of the year. Cost competiveness also improved markedly. In the year to the 3rd quarter of 2010 unit labour costs for the total economy fell by 8% driven by a 10% rise in productivity. Wage costs have started to increase slightly after a period of nominal decline. In manufacturing unit labour costs relative to trading partners fell by 14% over the same period. However, domestic demand remained fragile. It showed signs of bottoming out in the middle of 2010 and more timely indicators, including rising consumer confidence, retail sales, rising wage and salary income and capacity utilisation in manufacturing, are promising signals that the recovery will begin to broaden out.[1] The decline in activity saw year on year inflation decline from a peak of 11.5% in 2008 to a trough of –2.1% at the end of 2009. However, the domestic and international recovery appears to have already spurred a significant pick-up in inflation to over 5% by the end of 2010. Increases in food and energy prices have played a major role in this, and core inflation, while increasing despite the negative output gap, stood at only 0.8% (Figure 1.2). After two consecutive years of contraction, employment growth resumed in mid-2010 and the unemployment rate fell from its peak of 19.8 to 13.6% in the fourth quarter of 2010.The decrease in the unemployment rate may partly be explained by the increase in cross-border employment, principally in Finland. Employment abroad increased by 11 000 to 28 000 from 2010Q2 to 2010Q4, accounting for around half of total employment growth in the second half of the year. Seasonality may also have played a role.[2]

Figure 1.2. **Contribution to HICP annual growth, %**



Note: Core refers to the harmonised index of consumer prices (HICP) excluding food, energy, alcohol and tobacco.
Source: Eurostat.

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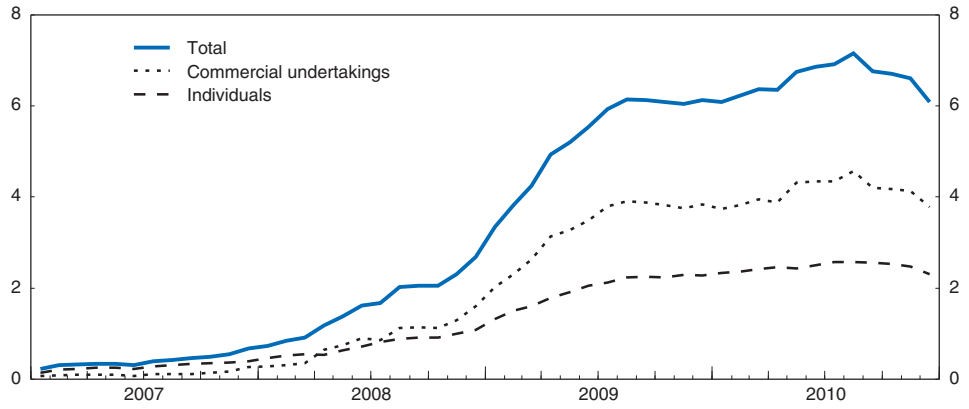
... but the legacy of the boom and bust cycle will likely constrain domestic demand...

The boom, exacerbated by low risk aversion worldwide and easy credit standards globally during the 2000s, resulted in a large increase in non-financial private sector debt in Estonia in the form of bank credit, which stood at 105% of GDP in 2009, up from 35% of GDP in 2004. In addition the non-financial private sector also increased direct borrowing from foreign creditors from 14 to 19% of GDP over the same period.[3] This left Estonia with a much larger private-sector debt burden than several other Central and Eastern European (CEE) economies. Furthermore, although still quite moderate by historical experience elsewhere, payments on a noticeable chunk of this debt (around 6% of debt owed to banks) are overdue by more than 60 days (Figure 1.3). The burden of repaying this debt combined with high unemployment is likely to restrain spending and therefore the overall recovery for quite some time. Recoveries following recessions involving financial crises and boom and bust cycles in credit tend to be slower and rely more on exports (Cerra and Saxena, 2008; Reinhart and Rogoff, 2009; Furceri and Mourougane, 2009). There are already signs that household savings rates have risen sharply (household savings rates rose from –8.7% in 2007 to 7.8% in 2009) and current high debt levels suggest that future demand for borrowing to fund private consumption and investment is likely to be far more modest than during the high growth period prior to the recession.[4] This could be further compounded if non-performing loans (NPLs) are not resolved, leaving borrowers to struggle with excessive debt burdens and banks more reluctant to extend credit.[5]

The credit boom has left the banking sector's loan book with high exposure to real estate related loans, which account for approximately 60% of the loan stock and NPLs.[6] Future developments in the real estate market will have an important bearing on the

Figure 1.3. **Non-performing loans in Estonia**
Loans overdue for more than 60 days as % of total loan stock



Source: Bank of Estonia.

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strength of the recovery directly via new building activity and also on credit risk faced by the banks which in turn will likely affect future credit supply and the recovery more generally. On the positive side, prices, sales and building permits data indicate that the real estate market and construction may have stabilised in 2010 after precipitous declines from pre-recession peaks, which should help to contain any further increase in NPLs.

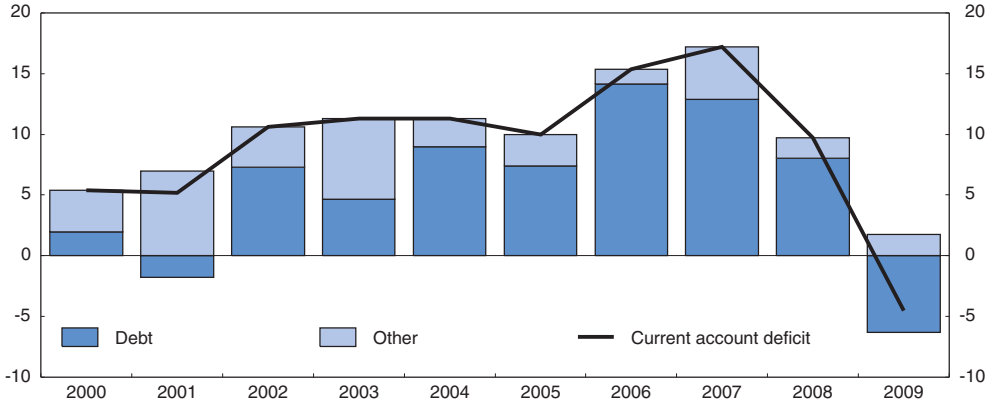
... leaving Estonia more dependent on export performance to drive growth

With domestic demand likely to remain subdued, prospects for overall growth going forward will be largely dependent on exports and external performance. After a trend increase in export market share in the decade up until 2005, although still sub-par compared with other CEE countries, cost-competitiveness worsened rapidly in the boom period leading up to the recession, and export growth slowed sharply from the end of 2005. This resulted in a secular decline of market share through to the end of 2009.[7] As a result of this export weakness and rapid import growth, the current account deficit blew out to an unsustainable peak of close to 20% of GDP, which was financed by mainly by foreign bank lending (Figure 1.4). The recession saw a rapid decline in wage growth and a sharp fall in unit labour costs, so that Estonia has begun to gain export market share again. To ensure that this improved performance continues, keeping the economy on a sustainable external led growth path and preventing excessive macroeconomic imbalances building up again as the economy continues to recover, will require Estonia to maintain cost-competitiveness as well as improving the quality, range and value of exports (Chapter 4), as well as better manage excessive capital and credit flows.

With its previous currency board and now as a member of the euro zone, Estonia will have to rely on price and wage flexibility to maintain cost-competitiveness to ensure labour costs do not grow out of line with productivity. Estonia's lightly regulated labour market and the apparent responsiveness of wages to prevailing labour market conditions should help achieve this (Figure 1.5). However, the risk of increased structural unemployment and the recent surge in inflation, despite plenty of spare capacity, are causes for concern. The rise in inflation points to the need to ensure competition is as strong as possible in all sectors of the economy, especially non-tradeables. As well as encouraging active competition, the government can directly influence non-tradeables costs by keeping tight control of the public sector wage bill and improving public sector

Figure 1.4. **Decomposition of the current account deficit**

% of GDP



Source: Bank of Estonia; OECD, *OECD National Accounts Database*.

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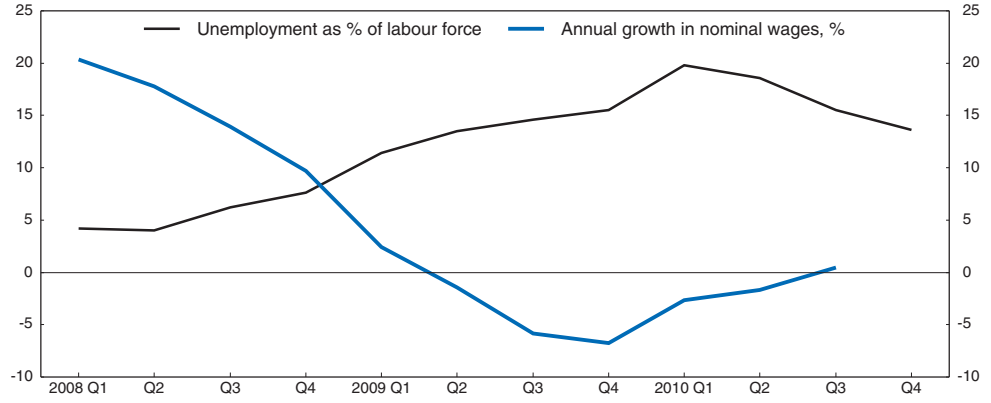
Figure 1.5. **Unemployment rate and wage growth**



Note: The unemployment rate refers to data from the *Labour Force Survey*. Wages are gross hourly wages of full-time employees.

Source: Statistics Estonia.

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efficiency (Chapter 3), which will reduce pressure on the private sector to raise wages and lower costs it faces from complying with government regulation.

Keeping the economy on a sustainable growth path and preventing excessive macroeconomic imbalances from developing will also require better management of excesses in bank lending. Although it is difficult to untangle credit supply from demand effects, an unsustainably large surge in bank lending was a major contributor to the large macroeconomic imbalances which built up during the 2005-07 boom. Developing tools to deal more effectively with such excesses would help to reduce the risk of a repeat episode. Efforts should be made to ensure that Estonia has a solution tailored to its particular needs as a very small, open economy. For example, greater use could be made of tools such as capital buffers, provisioning, limits on loan-to-value (LTV) or loan-to-income (LTI) ratios to prevent an excessive build-up of leverage in sectors such as housing and construction (OECD, 2010). The episode also highlights the need to maintain the Financial Supervision Authority's close cross-border co-operation on banking supervision (Box 1.1).

Box 1.1. **Risks of excessive credit cycles, macroprudential policy and cross-border supervision**

Prospects of continued real convergence within the euro area imply that Estonia will remain exposed to risks of excessive credit cycles, as lower interest rates and easier financing conditions might fuel spending and worsen the current account balance. Macroprudential policy can potentially play an important role in mitigating these risks. The primary objective of this policy should be to enhance the resilience of the banking sector, so that it is able to maintain the flow of credit to the economy, even if the broader financial sector experiences losses after a period of excessive credit growth. However, macroprudential policy can be also applied to lean against the wind and limit the build-up of financial risks that can pose a risk to the wider economy. Instruments for such policy include capital buffers, dynamic provisioning, loan-values-value and loan-to-income ratios.

Macroprudential policy in Estonia is complicated by the foreign ownership of its banking sector. The Financial Supervisory Authority plays only a limited role in supervising foreign branches, while subsidiaries depend mostly on financing from parent banks overseas. Effective policy is therefore possible only if there is close supervisory co-operation between related home and host countries' authorities. However, cross-border supervision can be at times difficult due to differences in the interests of home and host supervisors and imperfect information exchange. Encouragingly, the cross-border supervisory framework was strongly improved as part of the response to the global financial crisis and the Nordic-Baltic region has strong co-operation in place between the governments, central banks and supervisory authorities:

- At the international level, the Basel III capital requirements framework, to be transposed into the EU Capital Requirements Directive, introduces a counter-cyclical capital buffer that operates on the principle of jurisdictional reciprocity. While capital add-ons applicable to counterparties/borrowers in each jurisdiction are decided by the respective authorities, these are binding for all lending banks irrespective of their country of residence. This ensures that the buffer add-on will create a level playing field for banks from different countries and, crucially, that capital requirements are not circumvented through cross-border lending from other countries.
- At the European level, the European Systemic Risk Board (ESRB) has a strong mandate to monitor systemic risk, issue warnings and recommendations to EU and national authorities, and monitor their implementation within specified timelines. The European Banking Authority (EBA) will have strong tools to improve co-operation within supervisory colleges and to provide binding mediation to cross-border supervisory disputes.
- At the regional level, the good quality of regional coordination on financial stability was further improved in the wake of the crisis, in particular with the introduction of the Nordic-Baltic Cross-Border Stability Group (NBSG). The co-operation agreement on cross-border financial stability, crisis management and crisis resolution signed on August 2010 by finance ministers, central banks and financial supervisory authorities in the Nordic and Baltic countries,* established the first European cross-border stability group. The objective of this agreement is to ensure that countries not only co-operate effectively to prevent financial crises, but are prepared to deal with crisis situations by agreeing in advance on procedures for co-operation, sharing of information, assessments and resolution.

* Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway and Sweden.

Underpinned by ongoing export growth, the recovery is expected to continue with GDP growth reaching around 4% in each of 2011 and 2012 (Table 1.1). Restrained by ongoing slack in

the economy core inflation pressures are expected to be moderate. The risks to the projection are balanced. Two important factors that could be stronger or weaker than assumed in the projection are export market performance and the pace of household deleveraging.

The crisis may leave a permanent mark on the economy

There is a serious risk that jobs and skills mismatches in the wake of the recession will result in a sizeable increase in structural unemployment and a fall in the economy's potential output level. The OECD estimates the structural unemployment rate (NAIRU) to be around 11% up from around 9% prior to the crisis.[8] The fall in the level of potential output could be further exacerbated by a misallocation of capital during the boom years and high capital obsolescence. There could also be an effect on potential growth, which the OECD currently estimates to be around 3% down 5-6% that prevailed in the mid 2000s. Population ageing means the working age population will decline in coming years and this could be further compounded by outward migration triggered by the recession (European Commission, 2010).[9] Empirical evidence also suggests that recessions have a notable effect on R&D activity which will likely impact on innovation rates and productivity growth (OECD, 2009). On the positive side, efficiency-enhancing firm and industry restructuring following the crisis may contribute to faster productivity growth.

Policy in Estonia needs to foster a return to a high and sustainable growth path. There is no guarantee the economy will return to this automatically now that the recession is over. Part of this task is to tackle the direct legacy of the crisis, including notably high unemployment and bad debt.

Dealing with the consequences of the boom-bust cycle

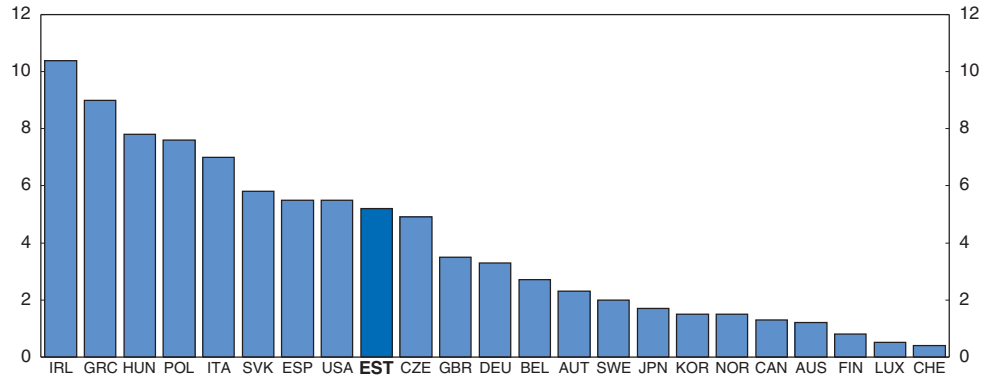
The hangover from the boom-bust cycle has left Estonia with a bad debt problem

Progress in dealing with the debt overhang has been slow. A more effective resolution of bad loans could contribute to faster and more sustainable growth by encouraging a swifter reallocation of assets towards more efficient uses. It could also help by ensuring that credit flows do not face any impediments to supporting the expansion of the economy. At this stage of the business cycle, when the economy has significant restructuring needs, the return from greater efficiency in resolving bad loans is likely to be particularly high. International comparisons suggest that there is room to improve the legal framework for dealing with bad loans, including bankruptcy procedures. Such improvements to the legal procedures for dealing with financial distressed corporates could also help to make Estonia a more attractive place to invest and thereby contribute to growth in the longer-run. A first class legal system especially on the corporate side can compliment Estonia's light taxation of corporate profits and help to make it the preferred location for regional headquarters as is already the case for banks.

Around 5% of total loans are non-performing in that they have been overdue for more that 90 days. Relative to the size of the economic downturn, the deterioration in asset quality has been mild compared with Latvia and Lithuania, where NPLs have reached around 15-20% of total loans. However, compared with many OECD countries, available data suggest the crisis has left Estonia with a sizeable NPL problem (Figure 1.6). Approximately 20% of households have mortgages and around 4.5% of mortgage loans are non-performing.[10] Individual loans, particularly mortgages, account for around 40% of total NPLs with the remainder being corporate loans. The share of NPLs in total loans began

Figure 1.6. **Non-performing loans, international comparison**

% of total loans



Note: Data are indicative only as non-performing loans definitions vary across countries; many, including Estonia, are loans overdue for more than 90 days. Data refer to 2009 or 2010.

Source: Bank of Estonia; IMF (2010).

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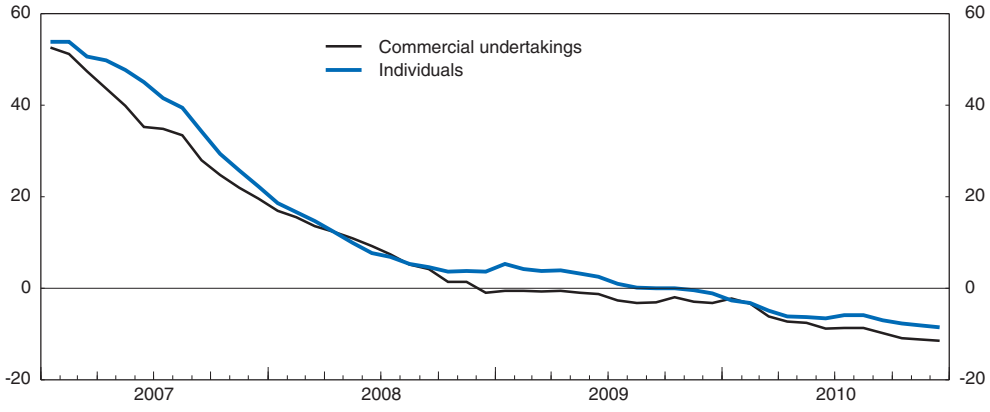
to fall in the second half of 2010. This is consistent with modelling by the Bank of Estonia which suggested that NPLs would peak in 2010 (Bank of Estonia, 2010).

Partly reflecting a reversal of previously unsustainable flows that helped to inflate the credit bubble, foreign financing of the banking system has declined by 24% from its peak in the 4th quarter of 2007 to the 2nd quarter of 2010.[11] In tandem with the withdrawal of foreign funding, the stock of credit available to non-financial firms was around 11% lower and for households was 8% lower in real terms in the final quarter of 2010 than the previous year (Figure 1.7).The lending margin (lending minus deposit interest rate has increased in both absolute terms and relative to the euro area (Figure 1.8). New credit issued has slowed dramatically and new loans have stabilised at around one third of the pre-crisis peak, around 1.5% of GDP per month. An important issue for the speed of the recovery is how quickly credit growth will pick up.

Figure 1.7. **Annual growth of real loan stock in Estonia, %**



Note: Loan stock was deflated using the consumer price index.

Source: Bank of Estonia; Statistics Estonia.

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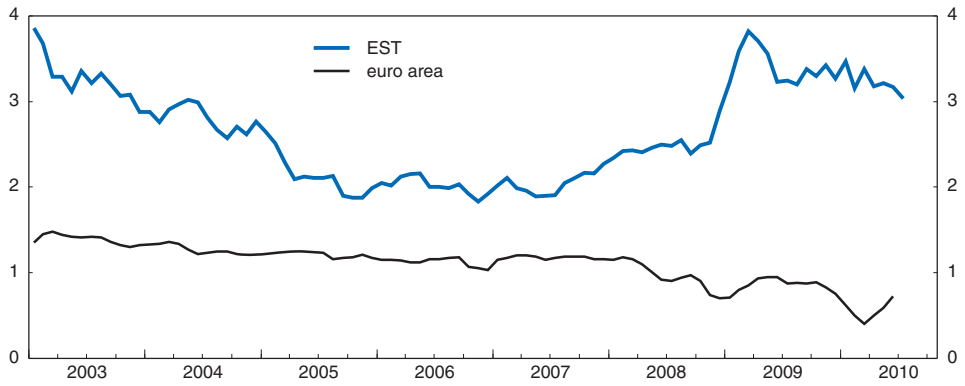
Figure 1.8. **Interest rate spread on loans to non-financial firms**

3 month moving average of business loan rate less deposit rate, %



Note: Interest rates are weighted by loans and deposit turnover. Estonian interest rates refer to euro denominated loans and deposits.

Source: Bank of Estonia; European Central Bank; OECD calculations.

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If current NPL problems are not resolved in an efficient and fair way for both creditors and debtors, it would likely discourage both the future demand and supply for credit and may also affect labour supply. On the one hand, if the resolution of NPL problems is particularly harsh or burdensome for households and firms, then this may discourage them from seeking new employment or higher income earning investment opportunities. On the other hand, it is important that creditor claims, including relations tor the collateral provided for the loan in the event of default, are adequately protected.

The risk that bad loans pose for the recovery can be reduced by reform of bankruptcy and out-of-court procedures

The resolution of NPLs is decentralised and being carried out by the banks. In the case of households, banks have been reluctant to foreclose on loans and household bankruptcy cases remain few because of the weak state of the real estate market and concern about a public backlash. In most cases they have sought to restructure the loans by lengthening the repayment term. In the case of corporate real-estate related loans they have been more willing to foreclose. However as the property market is weak they have acted in many cases as the buyer of the collateral because there are no other suitable bids. These assets have been transferred to special units that are direct subsidiaries of the foreign parent banks, which have had previous experience in dealing with this type of NPL during the Finnish and Swedish banking crises in the early 1990s.

Country case studies show that for a decentralised process of debt recovery to work efficiently requires the absence of bank-borrower ownership linkages, well capitalised banks, accounting rules that encourage adequate loan loss provisioning and a legal framework including bankruptcy procedures and out of court debt restructuring procedures that are in good shape (Dado and Klingebiel, 2002). Estonia appears to satisfy the first three requirements. Prior to the recession, the banking system did not have any notable ownership in firms that have taken out loans. In addition, the banking system is almost completely foreign owned (principally by banks in Denmark, Finland and Sweden) and well capitalised and has access to sufficient liquidity from parent banks.[12] Loan provisioning is high, 77% and 92% of loans overdue for more than 60 and 90 days respectively were provisioned in June 2010.

However, there is evidence that the current legal framework including bankruptcy procedures for resolving NPLs could be improved on both the individual and corporate arenas. On the individual side an obstacle to resolving household mortgages, is that the formal foreclosure procedure is expensive. The Debt Restructuring and Debt Protection Act legislated in November 2010 provides for a new individual debt restructuring procedure to complement the only previous alternative of petitioning for bankruptcy (Box 1.2).

Box 1.2. **Debt Restructuring Reform**

The *Debt Restructuring and Debt Protection Act* makes a number of important changes to the way that NPLs could be dealt with. For individuals, it provides as an alternative to the bankruptcy procedure the option of a negotiated debt restructuring procedure. Under the bankruptcy regime for individuals, the debtor is required to reimburse the creditor until the debt is repaid or for a maximum of 5 years. The debtor is required to pay a high share of their income in debt repayments, starting at a very harsh 85% of their income in the first year and decreasing by 5 percentage points per year for 4 years. This does not apply if the debtor's income is below EUR 250 per month. The procedure is expensive and debtors can generally not pay. In 2010 the government introduced a bankruptcy fee waiver for individuals where criminal behaviour is not involved and the debtor has no funds to pay for the procedure.

Under the new law, an alternative individual debt restructuring procedure is also available. The debtor can draft a restructuring plan with the assistance of an advisor if the court deems this as necessary. The debtor is allowed to restructure their debt obligations by increasing the deadline, paying in instalments or by a reduction in obligations. If the majority of creditors agree to the plan, the court would then approve it. In cases where the creditor rejects the plan and there is no collateral pledged, the court could still approve it if it considers that the creditor would probably have a lower or equal possibility of satisfying their claim under the standard bankruptcy procedure. A debt secured by collateral can only be restructured with the consent of the creditor.

The main objection to the legislative changes is that the new law reduces creditor property rights too much and this will ultimately reduce credit supply and/or increase the cost of credit in line with the greater risk faced by lenders. The central bank is concerned about the law on the grounds that it allows the possibility of reducing the loan principal and also because it is unclear how the restructuring process will work in practice and that there is a risk that it will not use sufficient economic assessment.

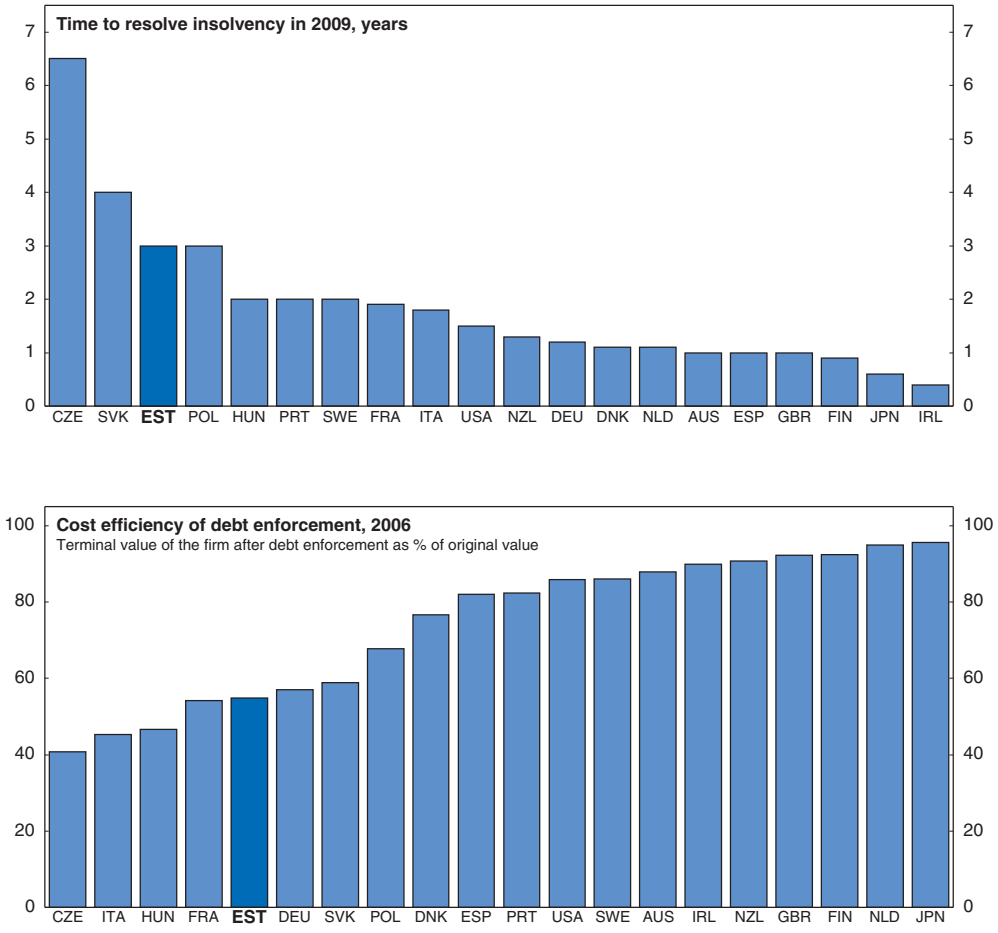
Increasing the role of an economic and financial assessment in the restructuring process would help to ensure that the creditor's claim is met as fully as possible while ensuring that borrowers have the capacity to meet these restructured obligations. A relatively costless way to do this would be to provide further criteria such as principles for judges to take account of when deciding whether a plan should be approved or not.

Introducing the option of individual debt restructurings is, in principle, a useful addition to the legal framework for bad debt resolution. It can potentially reduce the cost, increase the speed and allow greater flexibility in resolving bad loans and thereby contribute to resolving bad loans in a way that is acceptable to both debtors and creditors. By increasing flexibility, including the option to reduce the principal, it can also contribute to avoiding foreclosures and maintaining as many viable loan contracts as possible.

On the corporate side, there are indications that procedures are slow and expensive. An international case study suggests that around 50% of the residual value of a company

would be spent in formal debt recovery procedures in Estonia compared with less than 10% in the best performing OECD countries such as Finland (Djankov *et al.*, 2008). It also takes around 3 years on average for an insolvency procedure in Estonia compared with around 1 year or less in the better performing OECD countries (Figure 1.9).

Figure 1.9. **Insolvency and debt enforcement**



Note: Time to resolve insolvency is the number of years from the filing for insolvency in court until the resolution of distressed assets.

Source: Djankov *et al.* (2008); World Bank, *World Development Indicators*.

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Moreover, the decision to liquidate or rehabilitate a company can be complex, and requiring both legal and economic/financial knowledge, and many judges do not have sufficient expertise in the latter to assess whether a firm is viable or not. There is currently a debt restructuring procedure available for corporations with an option to engage outside expertise in the process, but it is rarely used because the debtor must pay for the experts and they mostly do not have the liquid funds available to do so. Liquidators are in short supply and not subject to sufficiently well-defined obligations. In addition, company directors are often too late to petition for bankruptcy when recoverable funds are almost exhausted.

The authorities are keen to enhance the legal framework and have already improved the corporate insolvency procedure by making initial determination of whether a company

is insolvent confidential to avoid a self-fulfilling prophecy (previously knowledge that a company was facing this determination was public undermining confidence in the firm and ensuring it would become insolvent). There is also draft legislation before the parliament to simplify company liquidation procedures.

Further improvements could be made to the legal framework to ensure that corporate insolvency cases are resolved in a manner that contributes to the efficient allocation of resources in the economy and that these decisions are in line with best economic and financial practice. One option for increasing the amount of expertise applied in these decisions would be to give the court the power to require the creditor to pay for experts, particularly in more intricate corporate cases where the company may be an important employer and has only non-liquid assets available.

The process could be further enhanced by giving further incentives, including penalties, for company directors failing to meet their obligations to petition for bankruptcy in a timely fashion. However, an important impediment to enforcing such obligations is that there is a lack of expertise among judges to determine whether they have actually met such obligations or not. There is currently a Ministry of Justice proposal to develop quantitative indicators to determine when petitioning should take place. This would be a useful stop-gap measure in the interim but the ultimate aim should be to develop a specialised bankruptcy court that had the capacity, *inter alia*, to make such determinations as well ensuring that sufficient judicial expertise can be applied to bankruptcy procedures in general. A major obstacle to setting up such a court currently is a lack of resources, but fiscal constraints should be weighed against the timeliness and return from such a court at the current juncture when the burden of dealing with NPLs is very high.

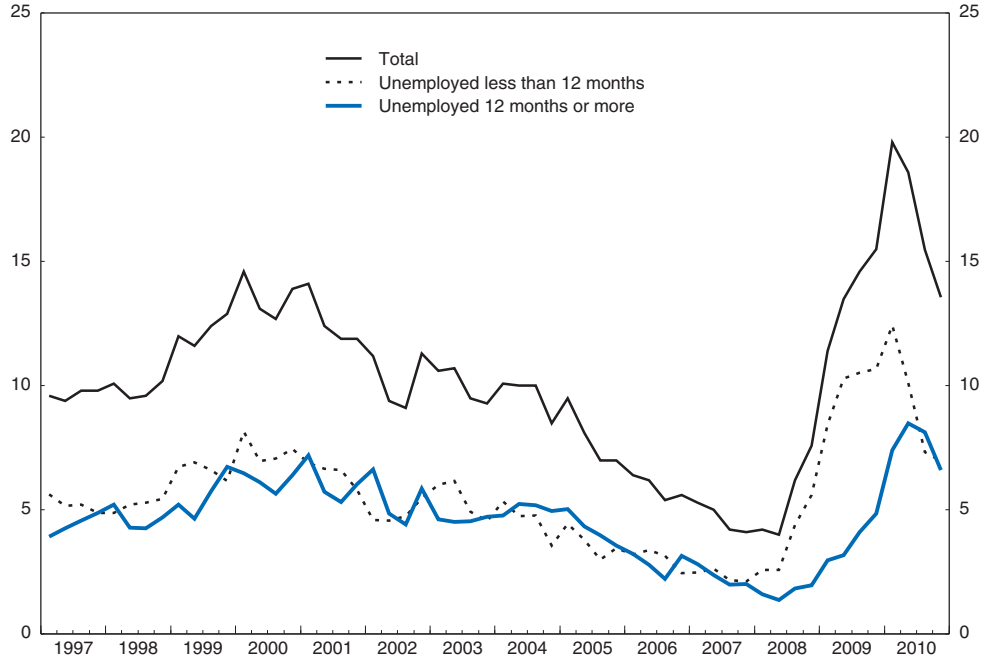
The bust has also significantly raised the risk of a large increase in structural unemployment…

The severe recession led to a sharp rise in the unemployment rate from to a peak of 19.8% in the first quarter of 2010 (Figure 1.10). Despite the resumption of employment growth and a noticeable decline in both the overall and long-term unemployment rates subsequently, both rates remain at high levels. By workforce group men have been harder hit relative to women, as in many OECD countries, reflecting larger job losses in the male dominated construction and manufacturing industries than services (Annex 1.A1). Also in common with many OECD countries, the youth unemployment rate (28% in the third quarter of 2010) is much higher than average. Unemployment rates are also much higher for those with upper secondary education or below than tertiary qualified (16%, 29% and 6% respectively in 2009). By region, unemployment rates are also very high in the industrial north-east of Estonia (25.4% in the third quarter of 2010) and amongst those whose first language is Russian rather than Estonian (19% and 10% respectively in 2009 when the overall unemployment rate was 13.8%).

The future path of the unemployment rate is uncertain and depends on a variety of factors including the working age population, participation rate, GDP growth rate and how "job-rich" that growth will be. Also important is how many people became structurally unemployed in the recession. A scenario analysis of the sensitivity of unemployment to these assumptions based on an error correction model of employment that assumes a long-term relationship between output and employment (Annex 1.A2) suggests that the unemployment rate is likely to remain high for several years. Even under a optimistic scenario that that only one third of the people who lost their jobs the recession, other than

Figure 1.10. **Unemployment rate by time unemployed**

Unemployed as % of labour force



Source: Statistics Estonia, *Labour Force Survey*.

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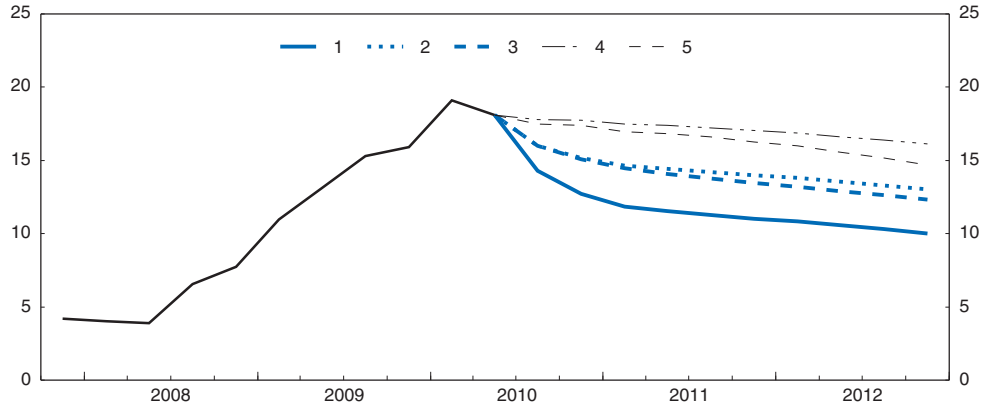
those from the construction sector, are likely structurally unemployed (*i.e.* 60 000 people, including 40 000 former construction workers, out of a total increase of 100 000, unemployment would still likely be around 10-11% by the end of 2012 (Figure 1.11).

Figure 1.11. **Unemployment rate scenarios, %**



Note: Scenarios:

1. 60 000 extra structurally unemployed due to the recession.
2. 80 000 extra structurally unemployed.
3. 80 000 extra structurally unemployed and 6% GDP growth.
4. Change in structural unemployment equals change in actual employment (100 000 extra structurally unemployed).
5. 100 000 extra structurally unemployed and job rich recovery.

Source: OECD calculations.

StatLink http://dx.doi.org/10.1787/888932378112

The principal risk arising out of the rapid deterioration in the labour market is that the high actual rate of unemployment will translate into a high rate of structural unemployment (NAIRU). This would impede the recovery, lead to faster re-emergence of inflation pressures and leave Estonia with higher levels of poverty and social distress. The literature identifies a broad set of labour market features that influence the NAIRU, including: the unemployment benefit replacement rate; the minimum wage; the tax wedge; product market regulations; employment protection legislation (EPL); the efficiency of active labour market policies (ALMPs); job and skills matching; and the rate of long-term unemployment (Llaudes, 2005; Gianella *et al.*, 2008).

Estonia's low level of EPL, similar to that prevailing in the English-speaking countries, and apparent wage flexibility, as revealed by the responsiveness of wages to higher unemployment, bode well. However, there are several reasons for disquiet. First is the large rise in the long-term unemployment rate. Long-term unemployment relative to short-term unemployment has a higher risk of becoming structural as such workers are less attractive to employers because their human capital has declined more and/or because they reduce job search intensity (Manchin and Manning, 1998). The second worry is that the efficiency of ALMPs and job-matching is too low to cope with such a hefty increase in unemployment.

... due to job and skills mismatch problems

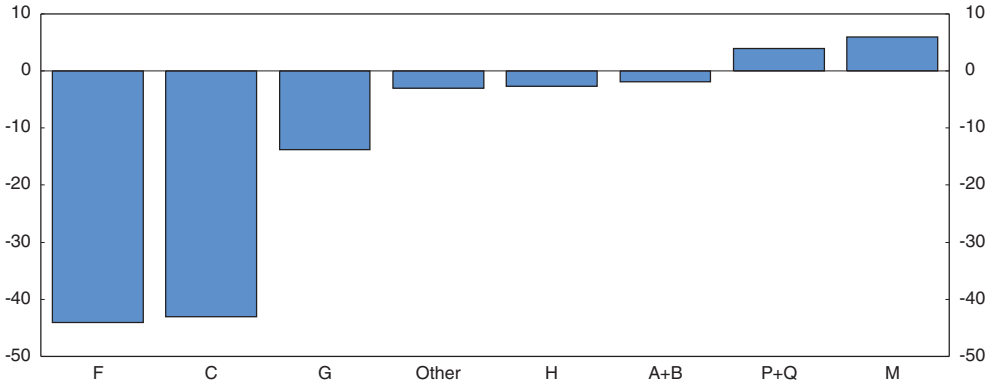
The greatest concern is that there is a high level of mismatch between the skills and occupations of the unemployed and the type of jobs the economy is likely to generate in the recovery. Of the 100 000 jobs lost following the onset of the recession (a 16% decline from 2008Q1 to 2010Q2), around 80% were in the construction and manufacturing sectors, roughly half in each sector (Figure 1.12). The construction sector became outsised as a share of GDP during the previous boom, so even with a more normal expansion it is likely many of these jobs will never reappear. Indeed, the loss of construction employment of 40 000 is equal to the amount of excess employment relative to a long-term trend at the end of 2007 predicted in the scenario analysis. In addition, constant technological change and strong global competition in trade mean that at least some of those dismissed from low skilled manufacturing jobs during the recession may not be able to return to such jobs again.

At an aggregate level, the relationship between vacancy and unemployment rates, the Beveridge curve, suggests that job matching has become more difficult (Figure 1.13). It is still early in the recovery but some tentative evidence of likely skills and jobs matching problems can also be seen by comparing the stock of unemployed persons in 2009 with the types of jobs being created in the recovery. Broadly speaking, it seems that since the recovery began in the 3rd quarter of 2009, the Estonian economy has been mainly generating professional, health and education employment of a high-skilled nature, while the bulk of the unemployed are trades and manufacturing workers with upper secondary education or less (Figure 1.14).

On the occupation side, the number of unemployed who were formerly working in professional occupations remained very low even during the recession but employment for this occupation group grew significantly following the trough in GDP in the third quarter of 2009 through to the second quarter of 2010 (Figure 1.14). By contrast, there was a much larger number of unemployed craft and related trade workers, but employment of this occupational group continued to decline following the trough in GDP. From an education perspective, the number of unemployed with tertiary qualifications was lower than other education groups in 2009. In the recovery from 2009Q3 to 2010Q2, employment of tertiary

Figure 1.12. **Employment change by activity**

Thousands employed, 2010Q2 *minus* 2008Q1



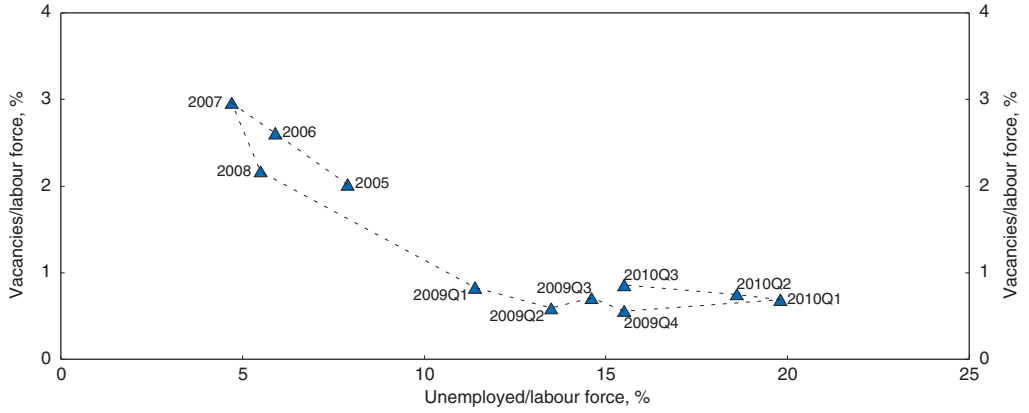
Note: Activity according to EMTAK 2008, the national classification (based on NACE Rev. 2, the Eurostat classification).

F Construction
C Manufacturing
G Wholesale
Other Other excluding households and non-classified
H Transport
A+B Agriculture and mining
P+Q Education and health
M Professional.

Source: Statistics Estonia.

StatLink http://dx.doi.org/10.1787/888932378131

Figure 1.13. **Beveridge curve**



Note: The unemployment rate refers to data from the *Labour Force Survey*.

Source: Statistics Estonia.

StatLink http://dx.doi.org/10.1787/888932378150

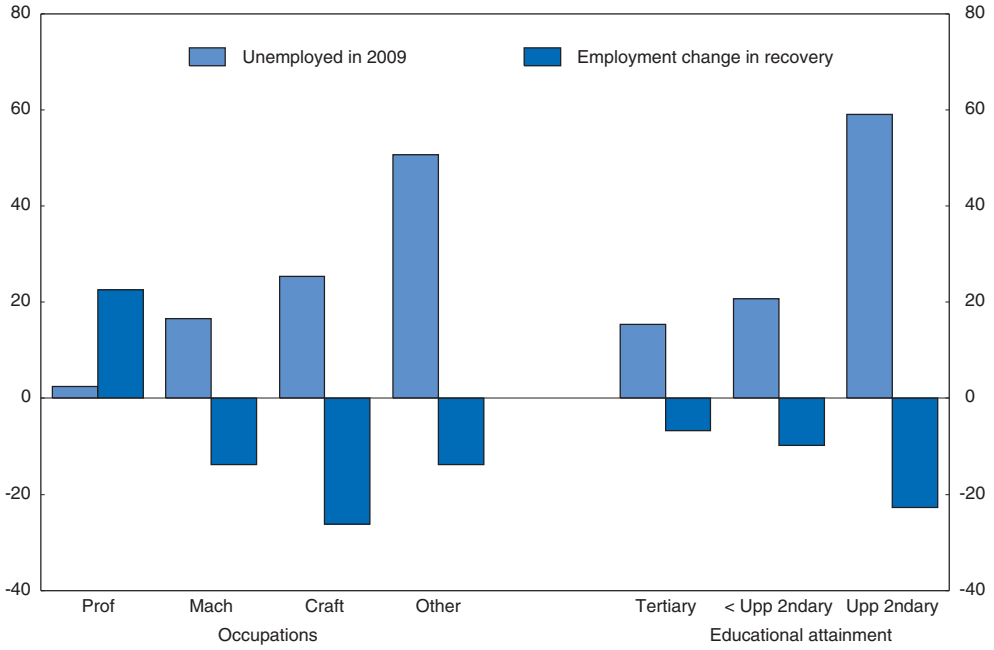
qualified workers fared relatively better in both absolute and proportional terms than the employment of below secondary and upper secondary educated.

Improving education and training of the unemployed

The mismatch between the unemployed and the types of jobs, both by occupation and skill-level, being created in the recovery suggests that improving the education and training of the unemployed is one of the important medium-term challenges Estonia must deal with in order to reduce the risk of high unemployment rates becoming entrenched.

Figure 1.14. **Jobs and skills mismatches**

Thousands



Note:
Occupations:
Prof Professionals
Mach Mach. operators and assemblers
Craft Craft and related trades
Other Other occupation.
Educational attainment:
Tertiary Tertiary educated
< Upp 2ndary Below Upper Secondary
Upp 2ndary Upper Secondary.
The employment changes in the recovery are calculated for the period 2009Q3 (the trough in GDP) to 2010Q2.

Source: Statistics Estonia and OECD calculations.

StatLink http://dx.doi.org/10.1787/888932378169

Part of this challenge will be to effectively tailor training efforts to the workforce groups identified above that dominate the unemployed, including youths, those with inadequate Estonian language skills and those formerly employed in the construction sector. A difficult task will be to assist and activate the high numbers of long-term unemployed whose human capital and job search motivation are likely deteriorating. Consideration should be given to making participation in activation measures and training compulsory where a need has been identified, as OECD experience show this can reduce passively staying on unemployment benefits and improve job prospects (OECD, 2010a).

Estonia's overall spending on activation measures has been low by OECD standards. In 2008, only 0.07% of GDP was spent on active measures compared with an OECD average of 0.57% (OECD, 2010). Spending has risen since then. Overall spending on activation increased to around 0.4% of GDP in 2010 and is expected to remain at that level in 2011.[13] Funds spent on training quadrupled from 2008 to 2009 to 0.1% of GDP while the number of participants more than tripled to 17 000 (17% of the unemployed in 2009). This was a major increase but was still below the OECD average in 2008 of 0.14% of GDP.[14] In 2010, activation measures include a mix of training and measures to support labour demand including wage subsidies (0.07% of GDP). A legislative change in September 2010 provided for greater

certainty about the funding for activation measures by allowing the flexibility to use unemployment contributions to pay for ALMPs, which would have otherwise not had funding beyond mid 2011. It is important to have a more stable funding source for ALMPs but in the longer run it would be better to pay for ALMPs from the general budget using revenues raised in more growth friendly ways than from unemployment contributions that widen the labour tax wedge. The authorities plan to direct more of the funds available for ALMPs towards training in 2011. Given the current jobs and skills mismatch situation, a strong priority on training and a further increase in funding is welcome. However, capacity constraints may limit how fast training can be increased while maintaining quality and relevance. Several aspects of the current training regime are encouraging. First is the work practice scheme, which allows an unemployed person to gain up to 4 months experience and training in a firm. ALMP funds are available under the scheme to pay for transport costs, training and also a supervisory fee paid to employers. This appears to have a relatively high success rate compared with general basic IT and language training, with 40% of participants getting a job after participating in the scheme. This type of work and training opportunity is likely to be particularly well suited for youth as experience shows that opportunities such as apprenticeships and internships facilitate the labour entry of youth (OECD, 2009a). An appealing feature of the scheme is that it allows employers to train a potential employee for the actual needs of the company, as international experience shows that training needs to be targeted, and employer-employee initiated training can help achieve this since it is difficult for the public authorities to predict skill demands (Carcillo and Grubb, 2006; OECD, 2010b). One disadvantage is that the training could be too employer specific, reducing future employee mobility.

Another useful innovation was the adoption from October 2009 of a pilot voucher scheme, which allows the unemployed, together with a PES consultant, to choose a relevant training scheme up to a cost of EUR 1 000. The scheme is expected to continue in 2011 and has the advantage of increasing the flexibility and potentially the relevance of the training. Indeed, experience in 2010 revealed that a higher percentage of people have found a job after participating in the voucher scheme than general training, Funding for the scheme will be 1.5 times higher in 2011 than in 2010 and the scope of the scheme will be expanded from training for enhancing existing skills to also being available for retraining needs. Both the funding increased and the increase in scope are welcome given the skills mismatch problems the Estonian labour market now faces, The voucher scheme's effectiveness in reducing unemployment relies on the training being truly relevant to the labour market. In this regard, some consideration should be given to increasing current information from employers about actual and prospective skill shortages. A relatively low-cost way to collect this information is to make full use of the already available PES IT system including having an Internet portal on which employers would regularly post vacancies and skill needs. Current efforts by PES consultants to assist employers with providing skills needs information are important as it is likely that small firms will need advice and encouragement to provide this type of information. Another favourable feature of the voucher system is that those identified as having Estonian language difficulties are targeted. This should continue to be a high priority, as the previous. *OECD Economic Survey of Estonia* (2009) identified a lack of Estonian language skills as an important impediment to the labour market performance of ethnic non-Estonians.

An initiative has also been in place to invite back to education those people that interrupted previous training, to take up jobs in the construction boom. The scheme

provides a state-funded study place, recognition for previous training (with a time limit) and a waiver of the usual entry test requirements. A return to vocational training schools is proving popular under this scheme. Efforts to ensure previous training efforts are not lost and return unemployed to the career path they were already on before it was interrupted by the boom years may prove to be particularly important for youth unemployed.

The range of activation measures has also been expanded by offering a business start-up scheme. As part of this scheme, unemployed persons can receive a start-up grant if they have no educational background in economics or business administration, business training, and mentor support. Starting a business is risky and failure rates are generally high even under good economic conditions, often because of a lack, in particular, of financial management skills. It is important that mentor support is available on an ongoing basis and not just at the initial phase of the business. The success of this programme in developing sustainable employment could be enhanced by the PES building a network of mentors (for example, retired business people, accountants) who could act as advisors on an ongoing basis. Estonia should closely monitor its start-up incentives programme as evidence on the effectiveness of start-up incentives is mixed. Dar *et al*. (1999) argue that self-employment schemes have large deadweight costs and high rate of business failures, but evidence of similar schemes in Germany and New Zealand tends to be more supportive (Wolff and Nivorozhkin, 2008; Perry, 2006).

Improving the Public Employment Service

The Public Employment Service (PES) has a key role to play in providing labour market services such as training advice and placement. The rapid and large rise in unemployment has put significant pressure on the PES. This pressure has been compounded by the lack of resources. In 2008, Estonia spent only 0.03% of GDP on the PES compared with an average of 0.16% of GDP in the OECD. A lack of physical space and inadequate IT systems for matching jobseekers and vacancies has hindered the PES from providing effective services to job seekers (OECD, 2010b). Nevertheless, the number of PES staff increased rapidly from 2008 to 2009, rising by 50% to 444 followed by an increase to 464 in 2010. Almost inevitably, given the extremely sharp rise in unemployment, this did not prevent the ratio of registered unemployed to PES staff rising .[15] Furthermore, a new IT system which can already be used to more efficiently match vacancies and jobseekers is in progress. New software for both unemployment benefits and labour market services, as well as a new hardware platform, have been developed and services are being gradually transferred to the new system. This is giving the PES new capability, so that jobseekers, for example, can now receive email notification of vacancies. New interactive services are planned for 2011. Developing and enhancing this system, including making maximum use of the Internet to facilitate information flows between job seekers, employers and the PES, should be a priority as this can help to take pressure off PES staff time. Indeed, PES staff reported that the new IT system allows them to enter skills and other information about a client in half the time it previously took.

Another way to reduce pressure on staff time, at least while PES resources remain tightly stretched, would be to relax the requirement to draw up an individual action plans for the client immediately on registration. This is usually unnecessary in the first few months of unemployment when jobseekers are more motivated. Some OECD countries usually postpone action plans and intensive interviews until after at least 3 months (OECD, 2010b). Instead a simple, standard mutual obligations agreement could be used on

registration followed by an individualised plan later on. Further potential efficiencies could come from a judicious use of out-sourcing. To date the PES has made little use of private employment agencies and where it has made use of them it has found evidence that these agencies have behaved fraudulently. Nevertheless OECD experience suggests that, if monitored carefully, outsourcing can be cost-effective. The authorities are appropriately first aiming to build up the competence of the PES to effectively contract out. While this is done, the scope for using out-sourcing to help alleviate pressure on the PES should be explored. Part of this could be to investigate making better use of regional *Enterprise Estonia* offices who have local knowledge of labour needs.

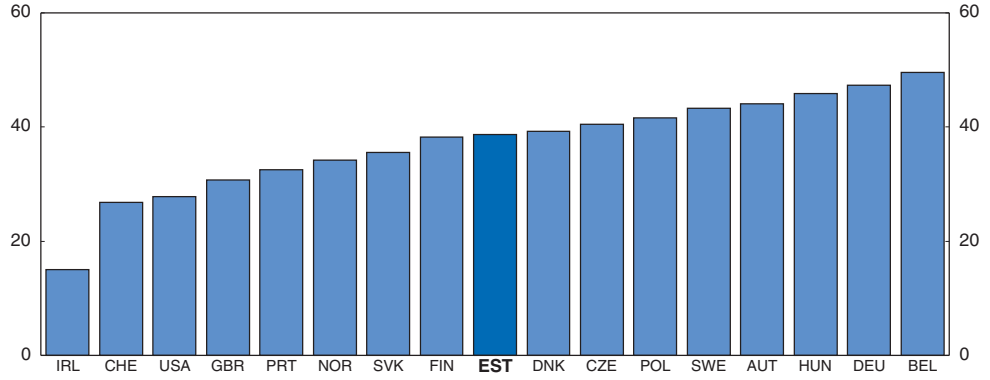
Increasing labour demand and improving flexibility

Given the high rate of unemployment of the poorly educated (unemployment rate of 32.7% in 2010Q2 *versus* 18.6% overall) and the limits to training all unemployed in the short-term, it is advisable to maintain at least some activation funding for wage subsides, provided they are temporary, targeted as currently at low income earners, and support net hiring. Gross hiring subsidies can be "gamed" by firms, increasing labour turnover. Net hiring subsidies that are paid on net increase in the total payroll are more cost-effective and involve fewer deadweight losses than gross hiring subsidies, which are paid for every new employee hired regardless of whether the total payroll increases. However, net subsidies can be more complex to administer (OECD, 2010a). Maintaining fiscal discipline as well as limiting deadweight losses as the economy recovers (employers will hire anyway) support moving towards a net hiring subsidy and reducing eligibility over time. In 2011, eligibility criteria will be tightened back to 2009 levels so the unemployed will generally need to be out of work for 12 months (6 months in the case of youths) before being eligible for this scheme, up from 6 and 3 months respectively in 2010.

More generally, the tax wedge on labour, at close to 40%, although below some EU countries, is relatively high and much higher than the in the English-speaking countries, which Estonia's labour market policy is similar to in other respects (Figure 1.15). A reduction in the tax wedge, for example through cutting social security or unemployment contributions and funding by more growth-friendly taxes (see Chapter 2), would help to

Figure 1.15. **Labour tax wedge, 2007**

% of labour costs



Note: Income tax plus employees' and employers' social security contributions as a percentage of the total labour costs (including payroll taxes where applicable) for a single person without children earning 67% of the average wage.

Source: OECD, *Benefits and Wages Database*.

StatLink http://dx.doi.org/10.1787/888932378188

boost labour demand and reduce unemployment. Empirical work using a sample of OECD countries suggests the average long-run effect of a reduction of the overall tax wedge on labour income by 3.5 percentage points would reduce the unemployment rate by 1 percentage point (OECD, 2007). The current proposal to make the increase in unemployment insurance contributions permanent is a step in the wrong direction. In addition, there is also currently a proposal to cap social security contributions for higher paid earners in order to increase high skill, high paid employment. It would be more efficient to target social security contribution cuts towards low paid workers, to increase their employment, by reducing overall labour costs in line with their productivity levels, while maintaining net wages at a level that makes work pay. This may involve delinking the social security payments that low-paid workers receive from their contributions in order to maintain a minimum level of support. There has already been some movement in the direction of cutting contributions. For newly engaged employees who were unemployed for at least 6 of the 12 months prior to being hired, the usual minimum floor for employer social security contribution payments does not apply for the first 12 months of employment. This primarily benefits part-time minimum wage employment.

Estonia has a very high proportion of permanent employment in total employment. The new Employment Contracts Act, effective from mid-2009, reduced the risk of dualism by reducing employment protection on permanent contracts. The Act also made it easier to use fixed-term contracts but increased employer's obligations by requiring them to pay for the loss of income to the end of contract term on early termination (except in the case of bankruptcy). This may discourage fixed-term contracts, even when this would be appropriate and in some circumstances provide a level of severance pay that in some circumstances is more generous than permanent contracts. Consideration should be given to introducing a cap on severance payments in cases of early termination of fixed term contracts.

Box 1.3. **Recommendations on macroeconomic and labour market policy**

Macroeconomic management

- In order to keep the economy on a sustainable growth path in the future, work towards developing new macro-prudential tools tailored to Estonia's small open economy and financial linkages to better deal with a situation of excessive credit growth.

Efficiently resolving non-performing loans

- Introduce a specialist bankruptcy court to improve the expertise applied to debt restructuring and bankruptcy proceedings; ensure that the court has the capacity to determine whether company directors have met their obligations to petition for bankruptcy. Develop as a stop-gap measure quantitative indicators to determine whether these obligations have been met.
- Give the existing court the power to require the creditor to pay for experts, particularly in more intricate corporate cases.
- Introduce a debt restructuring procedure for individuals. Develop a more detailed set of economic and financial principles for judges to take account of when deciding whether a plan should be approved or not.

Reducing the risk of increased structural unemployment

Training and education

- Make participation in activation measures and training compulsory where a need has been identified by a Public Employment Service counsellor.

Box 1.3. **Recommendations on macroeconomic and labour market policy** *(cont.)*

- Expand the voucher training scheme to help ensure training choices are tailored to individual needs.
- Ensure by providing PES consultant assistance to employers that the PES Internet portal is used by employers to regularly notify not just current vacancies but also the kind of skills shortages that they have or would have once demand picks up.
- For those unemployed for whom Estonian language difficulties have been identified as an obstacle to finding employment, prioritise training funds for language training as a lack of language skills is a serious impediment in the labour market for ethnic non-Estonians.

The Public Employment Service (PES)

- Develop a PES network of mentors (for example, retired business people, accountants) who could act as advisors on an ongoing basis for the unemployed in the business start-up schemes.
- Continue to develop and roll out without delay the new PES IT system as the current need for good job and skills matching is large and acute.
- As an interim measure, to free up time while pressure on PES staff time remains high, relax the requirement to draw up individual action plans for the client immediately on registration at the PES, as has already been recommended in the *OECD Labour Market Review*. Introduce a standard mutual obligations agreement on registration and leave creating an individual action plan until later on.
- Build–up the competence of the PES to effectively contract out and explore the scope for an out-sourcing programme to help alleviate pressure on the PES and tap into private sector expertise.

Boosting labour demand and improving labour market flexibility

- Maintain at least some activation funding for wage subsides, provided they are temporary, targeted as currently at low income earners, and support net hiring.
- Introduce social security or unemployment contribution cuts to boost labour demand.
- Consider introducing a cap on termination payments for fixed-term contracts.

Notes

1. Total wage and salary income (as measured by the GDP income approach) started to rose by 1.3% in the first half of 2010 after falling by 20% from 2008Q3 to 2009Q4.
2. This is the official *Labour Force Survey* unemployment rate but it is not seasonally adjusted and possibly affected by seasonal patterns in employment. OECD staff calculations indicate that in seasonally adjusted terms the unemployment rate may be a bit higher at around 14.5% in 2010Q4.
3. Excludes direct investment in the form of lending by foreign parent companies which rose from 8% of GDP in 2004 to 22% of GDP in 2009 for the private sector including financial companies.
4. Net household savings rate measure *i.e.* net of depreciation. Household sector only.
5. Non-performing loans are defined as loans overdue by more than 60 days.
6. Real estate exposure is calculated as the total of mortgage loans to individuals and loans for real estate activity and construction as percentage of total loans. Real estate related NPLs are calculated as housing NPLs plus 45% of remaining (commercial) NPLs. The latter ratio was based on information provided by the Financial Supervision Authority.
7. This is based on Estonia's share of weighted trading partner goods and services import volumes, using partner weights for 2005.

8. See Beffy *et al.* (2006) and Gianella *et al.* (2008) for a discussion of OECD methods for estimating potential output and the NAIRU.
9. Available data up until 2009 on permanent migration does not show any pick-up in *permanent* (expected to be more than for a 12 month period) net outward migration of the working age population (15-74) which remained relatively small at 571 persons or 0.1% of the labour force. However, there are a large number of cross-border workers that commute to work in Finland. These averaged around 20 000 in 2009 and 2010 according to the LFS or 3% of the labour force. Increased commuting of this type in the wake of the recession may be contributing to a reduction in effective labour supply in Estonia.
10. According to Statistics Estonia, at the end of September 2010 Estonian residents had taken out 151 000 mortgage loans. There are 582 000 households in Estonia (2000 census estimate) so an upper bound estimate on the number of households with a mortgage loans is 26%. However, the number of households has likely increased since 2000 as household size is decreasing and some households may have more than one mortgage, for example for a second property. These factors suggest that the actual proportion of households with a mortgage loan would be somewhat lower.
11. Measured as the percentage change in the stock of external debt owed by credit institutions.
12. The capital adequacy ratio (tier 1 and 2 capital divided by risk weighted assets) for the aggregated balance sheet of credit institutions was 22.2% in September 2010. SEB and Swedbank, two of the largest banks accounting for around two thirds of the total loan book, had individual capital adequacy ratios of 19 and 23% respectively in June 2010.
13. Based on information provided by the Ministry of Social Affairs on the nominal level of spending and OECD data on the level of GDP.
14. Based on information provided in the *EC/OECD Questionnaire on Employment and Social Policy – 2010 Update* and OECD (2010a).
15. Planned PES staff numbers for 2011 are 478.

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ANNEX 1.A1

Characteristics of the unemployed in Estonia

Unemployment rate, per cent

	2005Q4	2007Q4	2010Q1	2010Q3
Total	7.0	4.1	19.8	15.5
Age				
15-24	12.5	6.5	40.6	28
25-49	7.3	4	19.3	12.8
50-74	4.5	3.4	13.5	16.4
Gender				
Male	. .	. .	25.2	16.1
Female	. .	. .	14.6	14.9
Ethnicity				
Estonian	4.4	3.4	15.7	11.9
Non-Estonian	12.1	5.5	27.9	22
Duration				
Less than 12 months	3.5	2.1	12.4	7.3
More than 12 months	3.6	2.0	7.4	8.1
Selected regions				
Tallinn	7.8	2.7	21,4	14.9
Northeastern Estonia	16.3	8.3	27.4	25.4
Education[1]				
Tertiary	3.9	. .	9.5	. .
Upper Secondary	8.5	4.8	23.6	. .
Below Upper Secondary	9.8	9.4	34.3	. .
First language[2]				
Estonian	5.1	3.4	10.9	. .
Russian	13.2	7.1	19.4	. .
Occupation[3]				
Legislators, senior officials and managers	2.5	1.1	5.2	. .
Professionals	2.7	. .	5.4	. .
Technicians and associate professionals	2.2	1.7	11.9	. .
Clerks	5.8	. .	13.1	. .
Service workers and shop and market sales workers	8.5	5.0	21.0	. .
Skilled agricultural and fishery workers	5.9	. .	14.8	. .
Craft and related trades workers	9.7	5.6	35.7	. .
Plant and machine operators and assemblers	8.9	5.1	21.3	. .
Elementary occupations	8.5	5.8	23.7	. .

1. Average of 2010Q1 and 2010Q2 used for 2010Q1.
2. Annual rates for the years 2005, 2007 and 2009.
3. Annual rates for the years 2005 and 2007. Average of 2010Q1 and 2010Q2 used for 2010Q1.

Source: Statistics Estonia and staff calculations.

ANNEX 1.A2

Prospects for labour market recovery in Estonia

An important determinant of the future performance of the labour market in the current expansion that started in the 4th quarter of 2009 is how strongly employment will respond to GDP growth. An examination of past experience suggests that the relationship is very dependent on the phase of the business cycle. From 2000-05, labour productivity growth was strong and the employment response to GDP growth was low. This was followed from 2006-07 by growth which was far job-richer during the property boom that saw construction employment double from around 40 000 to over 80 000. In the recession that followed, the response of employment to GDP was greater still perhaps reflecting a "clean-out" effect of labour made redundant by technological and other changes as well as possibly prior over-shooting, as confidence collapsed with such a severe downturn.

Table 1.A2.1. **Response of employment to GDP**

	Phase	Employment growth (A)	GDP growth (B)[1]	Elasticity (A/B)
2000Q1-2005Q3	Expansion	7.4%	53%	0.14
2005Q3-2007Q4	Boom	8.0%	18%	0.45
2007Q4-2009Q3	Recession	–13.1%	–20%	0.64

1. Dates shown are for GDP growth. Employment tends to follow GDP with a lag of around one quarter and employment growth is shown here for periods with a delay of 1 quarter.

Source: OECD Economic Outlook 88 Database.

On the basis of this initial investigation, an error-correction model (ECM) linking employment and GDP is estimated over the period 2000Q1-2005Q4. In the long-run the *levels* of GDP and employment are expected to be related but divergences may occur in the short-run, Although the estimation period is short, it has the advantage that it is more representative of the relationship between GDP and employment in a more "normal" expansion period. The following equation is obtained using the Engle-Granger two step estimation procedure (t ratios in brackets). First a long-run relationship linking the levels of employment and GDP:

$$\ln E_t = \underset{(37.1)}{9.4} + \underset{(15.5)}{0.15}\ln GDP_t + RES_t \qquad \text{Adj. } R^2 = 0.91\text{, sample: 2000Q1-2005Q4}$$

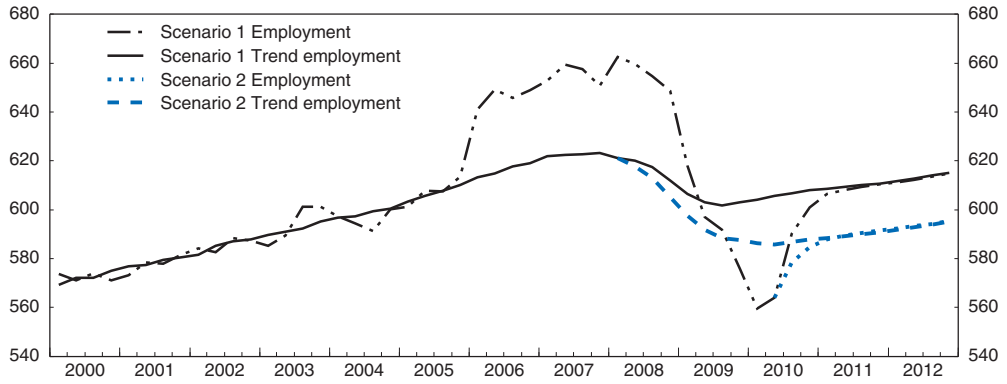
$$\%\Delta E_t = \underset{(-0.24)}{-0.01} - \underset{(-2.8)}{0.000001}{*}RES_{t-1} + \underset{(1.43)}{0.19}\%\Delta GDP_{t-1} + \varepsilon_t \qquad \text{Adj. } R^2 = 0.34\text{, sample: 2000Q1-2005Q4}$$

where $\%\Delta E_t$, and $\%\Delta GDP_t$ are the percentage change in total employment and GDP respectively and RES_t is the residual from the long-run equation linking the levels of employment and GDP.

These equations are used as a benchmark for scenario analysis of what would happen to employment in the coming expansion under certain assumptions. In this framework a crucial assumption is how many of the people who lost their job during the recession are now structurally unemployed. An initial assumption is that employment will return to the long run trend derived from the equations estimated above – scenario 1 trend employment (Figure 1.A2.1). This would imply that around 60 000 of the 100 000 people who lost their job in the recession are now structurally unemployed. It is likely around 40 000 of these are former construction workers hired in the boom period from 2005 through to 2007. This assumes that the relationship between GDP and employment is the same in recessions and normal expansion phases. However, the relationship between GDP and employment may be non-linear across business cycle phases. If a further 20 000 (for a total of 80 000) people became structurally unemployed in the recession then the long-run trend and recovery in employment would be correspondingly lower (scenario 2).

Figure 1.A2.1. **Employment scenarios**

Thousands



Note: Trend employment falls by 60 000 and 80 000 respectively in scenarios 1 and 2 as a result of the recession. Trend employment is assumed to diverge in the two scenarios from 2008Q2. Employment is assumed to follow the same historical path up until 2010Q2 in both scenarios and then move towards the different level of trend employment in each scenario from 2010Q3 onwards.

Source: Statistics Estonia; OECD calculations.

StatLink http://dx.doi.org/10.1787/888932378207

Assumptions about the degree of structural unemployment induced by the recession along with projections for GDP are used to generate an employment forecast for Estonia over 2011 and 2012. This is then combined with assumptions for the working age population (declining in line with Statistics Estonia projections) and labour force participation (constant) to generate the unemployment rate scenarios shown in the main text.

ANNEX 1.A3

Progress in structural reform

Past recommendations	Actions taken and current assessment
GETTING BACK TO SUSTAINABLE GROWTH PATH	
Removing pro-cyclical bias of fiscal policy	
Phase out the rule of annually balanced budgets that resulted in pro-cyclical fiscal policy. Balance the cyclically-adjusted budget.	The authorities aim for a medium-term objective of a structural surplus in 2012 (headline surplus in 2013).
To facilitate efficiency of public spending and counter-cyclical fiscal policy, supplement the deficit target by an expenditure rule on a multi-year basis.	Further developments of the fiscal framework are under consideration but mainly as a part of the EU fiscal rules process. Some institution specific rules have been introduced in the State Budget Strategy 2011-14 (such as loan limits for local governments and restrictions on the use of budgetary reserves).
Develop a medium term budgetary framework and use it as a basis for the annual budgeting process.	No action taken beyond the already existing annual State Budget Strategy which outlines fiscal policy principles and priorities of the government for four out-years.
Establish an independent institution to monitor budgets and their outcomes. In addition, the independent macroeconomic projections of the Bank of Estonia including the real GDP growth rates could be used during the budget preparation.	No action taken.
If the output gap and hence the structural position is estimated with a high error margin or the expenditure ceiling exceeded, augment the rule with a mechanism that would claw back expenditure or debt overruns.	No action taken.
Develop further a government bond market to facilitate the efficient financing of the government deficit. Well-functioning government bond markets can be an important benchmark for financial markets. They can also increase competition in the financial sector.	No action taken.
STRENGTHENING FINANCIAL STABILITY	
Mitigate risks to financial stability	
Continue careful monitoring of financial stability risks and strengthen strong cross border co operation with foreign financial market supervisors as well as foreign banks on supervision, liquidity provision to banks, and the coverage of deposit insurance.	A co-operation agreement on cross-border financial stability, crisis management and resolution between the finance ministries and other relevant ministries, central banks and financial supervisory authorities of Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway and Sweden signed. It also established the first European cross border stability group. Meanwhile, cross-border supervisory colleges established for larger banking groups. Improvements of capital and liquidity regulation and reforms of supervisory and crisis management ongoing as a part of EU framework.
Enhance communication of information to the public in order to sustain the confidence of the public in the financial system.	A number of steps have been taken, including series of public lectures and targeted seminars for journalists, new consumer protection website for young with a section on financial issues. An amendment to the Law of Obligations Act obliges the banks operating in Estonia to inform clients of changes in the terms and conditions 2 months in advance instead of 1 month previously. The new procedure also requires banks to inform clients personally. This is effective from May 2010.

Past recommendations	Actions taken and current assessment
Increase households' financial literacy, especially on risks related to high indebtedness, variable rate loans and loans in foreign currency.	The Estonian Financial Supervision Authority (EFSA) has started a number of activities in this area which include a consumer education project, adding financial education to school curricula, teachers' financial literacy training and a dedicated website on financial issues of consumer protection. Educational activities are also being increased by the Tallinn University of Technology and Tallinn Stock Exchange and other financial market participants.
Consider adopting a mortgage-based lending system with a securitisation scheme, in addition to traditional deposit-based lending. Provide accompanying financial education for all market participants.	No action taken.
Encourage the development of fixed rate loans through surveillance by the Bank of Estonia and/or the Financial Supervision Authority. Encourage banks to take account of credit risks due to variable rates.	The Financial Supervision Authority raised the issue of credit risk arising from adjustable interest rates with the banks and performed credit risk stress-tests which assumed among other things upward shifts in the yield curve resulting in an increase in the loan servicing burden of clients.
Reduce the favourable fiscal policy bias of home ownership	
Consider phasing out the tax deductibility of mortgages in the medium term to avoid further amplifying the cycles in the housing markets.	No action taken.
Reconsider the design of tax exemption of capital gains on housing, for example by introducing a minimum period of residence and excluding summer houses.	There is a draft law currently in Parliament that would limit the tax exemption to the sale of one permanent residence during a period of two years (should become effective in 2011).
Align the tax assessment of land value more closely with the market value by regularly updating assessments and bringing buildings into the tax base.	No action taken.
Consider phasing out the loan guarantee programme to reduce distortions in housing investment.	No action taken.
Enhance labour mobility while easing access to affordable housing and improving public transport	
Ease access to affordable housing. Increase the level of housing allowances over the medium term to take into account regional differences in the housing cost.	Allowances are determined at the municipal level and have changed from year to year (*i.e.* increased), including recently
Improve public transport system through investment in infrastructure.	Some action taken as there has been a number of investments made in railway reconstruction, building new contact lines for electric trains and airport developments (Tartu, Kärdla, Ruhnu, Kuressaare, Pärnu and smaller ones).
LABOUR MARKET: INCREASING FLEXIBILITY AND REDUCING SEGMENTATION	
Increase labour market flexibility and strengthen incentives for job search	
Implement the EPL changes fully as stipulated in the Act, including lay-off notice periods.	EPL changes implemented since 1 July 2009. Some security components of flexicurity concept (widening of personal coverage of unemployment insurance benefit mainly) to be implemented in 2013.
Over the medium term, consider replacing severance payment with an Austrian type savings scheme to facilitate mobility across employers.	No action taken.
Given that the new Employment Act increased unemployment benefits and *de facto* prolonged their duration, make benefit increases conditional on participation in active job search. Impose sanctions for non-compliance.	Action taken. Amendments in activity requirements are foreseen in the Labour Market Services and Benefits Act in progress. Preliminary results to be reported after consultations with social partners in October 2010; amendments expected to be adopted by the parliament at the very end of 2010 or beginning of 2011.
Reduce the tax wedge by reducing social contribution paid by employers, especially on low-wage workers.	Action taken. A tax incentive has recently been introduced for hiring unemployed persons (no minimum social tax liability during the first 12 months of employment).
Keep increases in public sector wages in line with private sector productivity growth.	Action taken, as the 2011 budget is in line with this principle. In the medium-term the State Budget Strategy does not foresee an increase in the aggregate operational costs` budget (including wages) in the public sector.
Reduce employment disincentives for low-wage workers	
Keep rises of minimum wages in line with productivity. Reduce politicisation of decisions on minimum wage increases by bringing outside expertise into the negotiations between trade unions and employers' confederation.	The minimum wage has not increased since 2008. No action taken on de-politicising the negotiations on the minimum wage.

Past recommendations	Actions taken and current assessment
Encourage life-time employability	
Encourage further life-long learning and skill upgrading.	The absolute number of labour market services has increased significantly (by approximately one third); due to the severe increase in registered unemployed the share of registered unemployed participating in active measures has dropped from 10.5% in the first half of 2009 to 8.4% in 2010.
Consider well designed and implemented increases in ALMPs over the medium term, given their currently very low level.	The concept of ALMP is to be assessed in 2011, follow-up amendments are to be drafted in 2012. Moreover, there has been a merger of labour market institutions (Labour Market Board and Unemployment Insurance Fund) in May 2009 with the aim to increase both the availability and efficiency of labour market services.
Facilitate labour market integration of ethnic non-Estonians and foreign migrants	
Increase access of these groups to the Estonian language and professional training, including on the use of the Internet services. Conduct well-targeted outreach on benefits of knowledge of the Estonian language.	Language training is an integral part of labour market training in cases where it is identified as necessary in individual action plans (for employment). There are additional free language courses provided by Migration and Integration Foundation and financed by the Ministry of Education in the framework of European Social Fund (ESF) funding or European Investment (EIF) funding.
Simplify the work permit process for non-EU foreign workers.	In 2008, amendments to the Aliens Act came into force. The aim of these amendments was to simplify procedures relating to the employment of foreigners and specification of the regulation. These included: 1. The annual immigration quota increased from 0.05 to 0.1% of the permanent population of Estonia annually. The possibility to except specific individuals from the immigration quota was abolished. 2. Salary criterion requirement established. 3. Minimum period to search for a local employee before a permit for an immigrant employee can be granted reduced from two months to three weeks. List of foreigners who have right to work in Estonia without work permit was supplemented. 4. List of special posts for which neither the minimum period to search for a local employee nor the salary criterion have to be met has been expanded. 5. Procedure deadlines unified, resulting in the same two-month deadline for all foreigners under the temporary residence permit procedure.
Establish a system of formal recognition of migrants' qualifications.	The system of formal recognition of foreign higher education qualifications and qualifications giving access to higher education also established a procedure for the evaluation of foreign professional qualifications. The principles and procedures are based on EU Directive 005/36/ec.
ENHANCING THE BUSINESS ENVIRONMENT TO FOSTER PRODUCTIVITY	
In selected network industries, reduce state control through privatisation. Limit special voting rights and restrictions on the sale of stakes held by the government.	No action taken.
Increase the share of electricity retail markets open to consumers and create an expanded, liberalised wholesale market in the electricity sector.	The wholesale electricity market opened in April 2010 and started with the support of Nord Pool Spot. Opening the retail market is scheduled for the end of 2012.
Monitor carefully the impact of limiting the corporate tax liability to distributed profits and reconsider should serious distortions arise.	No action taken, a study on the impact of the corporate taxation system on investment and development commissioned.
Give high importance to the evaluation of the efficiency and impact of different programmes supporting business and innovation activities.	The mid-term evaluation of support impact is scheduled for 2011. Comparative analysis of the efficacy of direct support and financial instruments carried out.
Consider merging some of the business and innovation support programmes.	An assessment under way.
Improve access of local SMEs to financing, possibly through development of a broader range of financial instruments such as microfinance.	The development of micro-financing based on start-up loans is in operation.

Chapter 2

Fiscal policy: Avoiding pro-cyclicality and safeguarding sustainability

Public finances came under severe strain during the economic crisis, but the remarkable fiscal consolidation implemented during 2009 averted a confidence crisis and paved the country's way into the euro area. The large-scale fiscal adjustment of about 9% of GDP included significant structural measures, but also sizeable one-off and temporary measures, including the diversion of state contributions to the mandatory funded second pension pillar to the general government budget. Fiscal policy is now confronted with three overlapping challenges: establishing a new balance between revenues and expenditure to ensure a durable improvement in the underlying fiscal position; protecting fiscal balances in the upswing; and preventing an erosion of contributions to the second pension pillar. The last is particularly important for preserving long-term fiscal sustainability. To address these challenges, fiscal rules and institutions need to be strengthened. The tax system can be enhanced to support fiscal consolidation and improve efficiency, while preserving the simplicity and transparency of the Estonian tax system. There is scope to raise the share of the least distorting property and environmental taxes. The efficiency of the VAT system was weakened during the recession. Strengthening VAT administration, reconsidering exemptions and possibly increasing the standard VAT rate could be used to compensate for reductions in more distorting labour taxes.

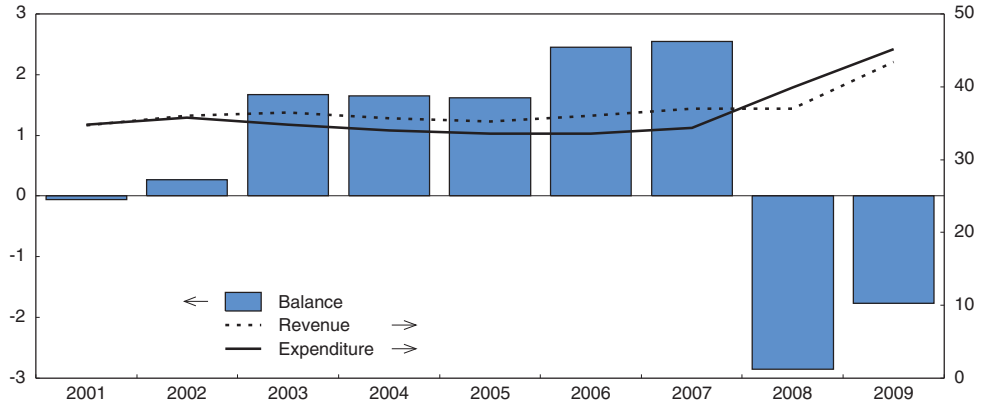
Regaining fiscal sustainability after the crisis

The crisis put a severe strain on public finances…

Prior to the crisis, Estonia's fiscal situation was very favourable in international comparison. The general government balance had been in surplus between 2002 and 2007 (Figure 2.1), as successive governments followed an implicit "balanced budget or better" rule. Gross public debt was lower than in any OECD country at 3.7% of GDP at the end of 2007 (Figure 2.2), well below the level of government financial assets (Table 2.1). However, the prudent underlying fiscal position[1] had been gradually eroded during the boom preceding the crisis (Figure 2.3), as buoyant cyclical revenues were channelled into structural expenditure programmes. Fiscal policy thus became expansionary during the boom, contributing to the overheating of the economy (Figure 2.4).[2] The underlying fiscal balance turned to a deficit in 2006 and deteriorated sharply in the second half of 2007, as the cycle was turning. The worsening of the underlying position continued into 2008, as the draft budget for that year envisaged a more than 20% increase in nominal spending compared to the previous year.

Figure 2.1. **Government finances, 2001-09**

% of GDP



Source: OECD, *OECD Economic Outlook Database*.

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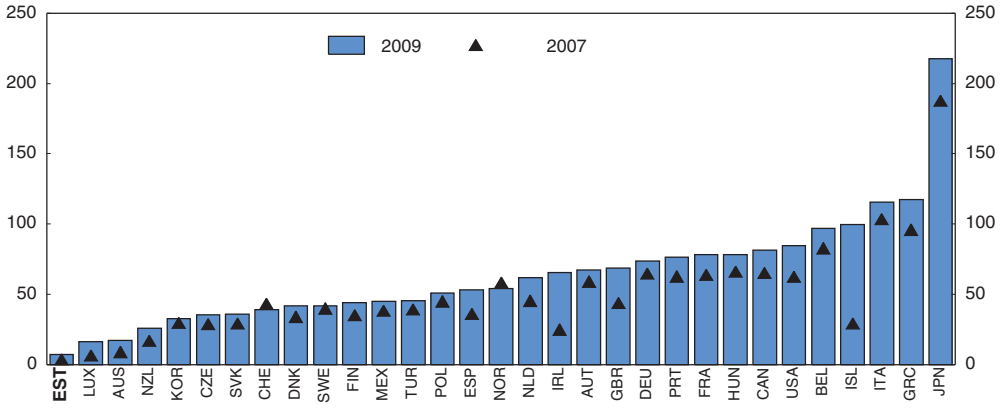
The headline budget balance swung to a deficit at the beginning of 2008, as the economy entered recession and automatic stabilisers on the revenue side kicked in. It should be noted that in 2008 the level of activity was still above potential, although the positive output gap was rapidly shrinking. Between the second quarter of 2007 and the second quarter of 2008, the headline fiscal position worsened by 6.5 percentage points in relation to GDP, with 5 percentage points coming from an increase in expenditure, and only 1.5 percentage points from the decrease in revenues. This revealed a considerable

Figure 2.2. **General government gross debt, 2007 and 2009**

% of GDP



Source: IMF, *World Economic Outlook*, October 2010.

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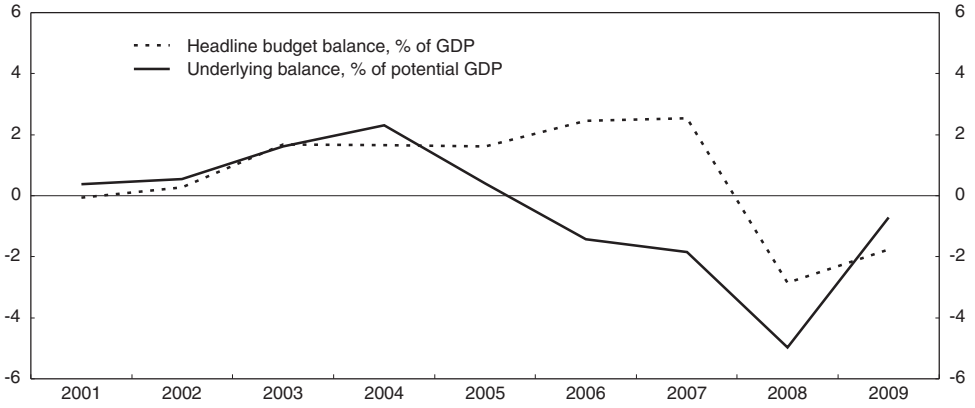
Table 2.1. **Government financial assets, 2007-09**

Billion EEK	2007	2008	2009
Total government financial assets	29.9	24.4	25.0
Central government	21.6	15.7	18.4
Local governments	1.9	1.8	1.1
Social security funds	6.4	7.0	5.4
% of GDP			
Total government financial assets	12.1	9.7	11.5
Central government	8.7	6.2	8.5
Local governments	0.8	0.7	0.5
Social security funds	2.6	2.8	2.5

Source: *State Budget Strategy* (2010).

Figure 2.3. **Headline and underlying fiscal balances, 2001-09**



Note: The underlying fiscal balance eliminates the impact of cyclical fluctuations and one-off measures.

Source: OECD, *OECD Economic Outlook Database* and OECD estimates.

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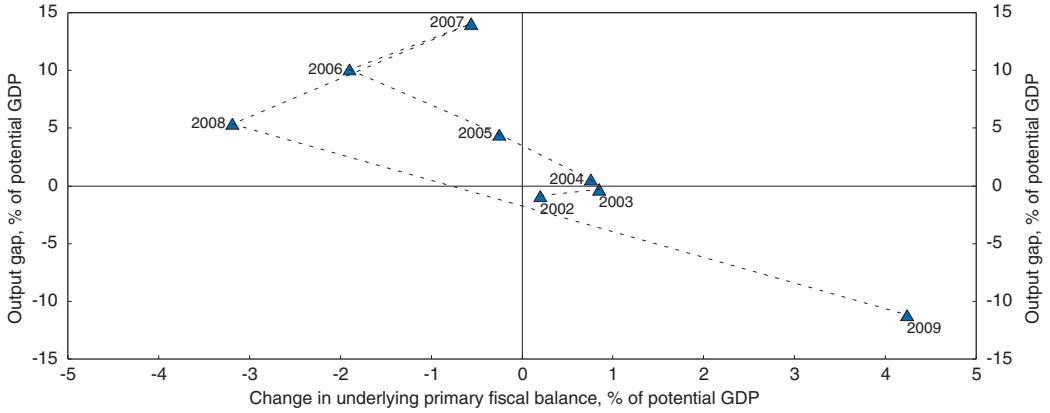
Figure 2.4. **Fiscal stance, 2002-09**



Note: The underlying fiscal balance eliminates the impact of cyclical fluctuations and one-off measures. The output gap is actual minus potential output as a percentage of potential output.

Source: OECD, *OECD Economic Outlook Database* and OECD estimates.

StatLink http://dx.doi.org/10.1787/888932378283

spending overhang: expenditure had been ratcheted up in expectation of continued high growth (the draft budget was based on the assumption of a 14% growth in nominal GDP, which in fact grew by less than 2% in nominal terms in 2008), while revenue buoyancy came to an abrupt end.

Fiscal reserves built-up during the years of fiscal surpluses preceding the crisis (Box 2.1) provided a welcome buffer at the initial stage of the downturn, allowing the government to cover the emerging fiscal gap without resorting to borrowing. The deepening of the crisis and the emergence of the large negative output gap widened the

Box 2.1. **Fiscal reserves of the Estonian government***

The central government accumulates assets in two reserves funds, sometimes referred to as fiscal reserves: the Stabilisation Reserve Fund (SRF) and the Cash Reserve Fund. The Cash Reserve Fund facilitates liquidity management. The Minister of Finance has the right to use the Cash Reserve Fund for smoothing of cash payments, covering claims from contingent liabilities and to bridge financing. The SRF was established in the late 1990s with the objective to strengthen macroeconomic stability by providing resources for emergency situations and unforeseen revenue shortfalls, as well as to support structural reforms. Unlike in the case of the Cash Reserve Fund, the use of the SRF is decided by parliament on a basis of a proposal by the government. The SFR assets that reached just over 2.5% of GDP by end-2007 had been built-up mainly from privatisation revenues and fiscal surpluses of 2002-07. Both the SRF and the Cash Reserve Funds follow a conservative investment strategy, with assets invested mainly in foreign government bonds or held in bank deposits. Investment income is transferred to these funds.

The SRF has some features of a sovereign wealth fund, although the accumulation of assets by the SRF has not been linked to commodity-related revenues, as in many such funds (Chile, Norway, Russia), or funded by foreign exchange assets, as for example in China or Singapore. The fund has played the short-term fiscal stabilisation objective of a sovereign wealth fund, by accumulating assets during the cyclical upswing and running them down during 2008-09 to finance the large fiscal gap. The SFR' assets fell by approximately a third and stood at 2.1% GDP by the end of 2009. While the assets of the Cash Reserve Fund declined in absolute value, they

Box 2.1. **Fiscal reserves of the Estonian government*** *(cont.)*

actually increased in relation to GDP given the large fall in nominal GDP, from 6.1% in 2007 to 6.5% of GDP by the end of 2009. The government intends to rebuild the assets of the funds in the coming years. This would support other objectives pursued by many sovereign wealth funds, namely structural reforms and intergenerational transfers.

* This box draws on Kraan *et al.* (2008), Ministry of Finance and Bank of Estonia.

budget deficit that under unchanged policies would have reached around 10% GDP, which means that fiscal reserves could have financed less than one year of deficit.

… and prompted an extraordinary fiscal adjustment…

Against this background, the government approved its first consolidation package at the end of 2008. The measures improved the fiscal position by about 1.2% of GDP in 2008, and had an effect on the 2009 budget of about 3.8% of GDP. As the downturn progressed three further packages were approved in 2009 (see Annex 2.A1). Overall, these four packages improved the 2009 budget by about 9% of GDP compared with the original 2009 budget.

The decision to consolidate public finances during the downturn, although not unique (for example, two other Baltic countries – Latvia and Lithuania – similarly implemented fiscal adjustments of a comparable scale in 2009)[3] was in sharp contrast to the approach taken by most OECD governments. Many supported their economies via fiscal stimuli of various magnitudes during that time and allowed automatic stabilisers to work. The Estonian decision should be viewed in the context of limited market financing options due to the underdeveloped domestic bond market and drying-up of international liquidity, as well as the need to support the confidence in the currency board, which was under considerable pressure, not the least because of the high share of foreign currency loans that accumulated during the boom years. In the light of these pressures, the authorities decided to move forward with euro adoption as quickly as possible. This decision was an important factor in determining the scale of consolidation in 2009, as the general government deficit had to be kept under 3% of GDP to fulfil the budget criterion for euro entry.

… which included a significant structural adjustment…

The large-scale consolidation programme comprised a significant number of structural measures (see Annex 2.A1 for detailed information). The improvement of the underlying fiscal position (excluding automatic stabilisers and temporary and one-off measures) by 4.2% of potential GDP (Box 2.2) was achieved via both spending and revenue measures. Expenditure adjustments included wage cuts and staff reductions in the public sector, as well as structural reforms, for example reform of sickness benefits and the pension indexation mechanism. Defence expenditure and agricultural subsidies were reduced. On the revenue side, the standard VAT rate was increased by 2 percentage points to reach 20%.The reduced VAT rate was increased from 5 to 9%, and eliminated for several items. Various excises were raised. Unemployment insurance contributions were increased from 0.9 to 4.2% of the payroll. Certain tax allowances and benefits were abolished, and the previously announced cuts in income tax rates and the increase of the income tax threshold were suspended. Despite the pro-cyclical nature of fiscal consolidation, many of its structural elements are broadly welcome. Nevertheless, in particular with regard to the reforms of social protection, the consequences

Box 2.2. **Estimating the size of fiscal consolidation in 2009 in Estonia**

The reference variable used by the OECD to define a sustainable consolidation is the change in the underlying primary fiscal balance of the general government, *i.e.* the headline balance excluding net debt interest payments, the impact of cyclical fluctuations and one-offs (large non-recurrent fiscal operations) as a percentage of potential GDP.

Between 2008 and 2009, the general government primary balance in Estonia improved by about 1 percentage point of GDP. This change reflected the effects of automatic stabilisers, discretionary policy actions (both structural and temporary in nature), and also the fall in nominal GDP over this period. OECD estimates based on the methodology outlined in Girouard and André (2005) show that the cyclically adjusted primary balance, *i.e.* the primary balance net of cyclical effects, improved by 7 percentage points of potential GDP between 2008 and 2009. It should be noted that these estimates do not reflect a possible permanent fall in potential output in 2009. If potential output did fall, then the output gap was in fact narrower and the cyclical component less negative in 2009, implying a smaller improvement in the cyclically adjusted primary balance in 2009.

Further adjustment is needed to exclude the impact of temporary and one-off measures. The OECD estimates that temporary and one-off measures reached about 3% of potential GDP in 2009, while they stood at 0.2% of potential GDP in 2008. Excluding the impact of these effects from the cyclically adjusted primary balance would yield an improvement of 4.2% in the underlying primary fiscal balance, the OECD's preferred measure of fiscal consolidation.

Another way to estimate the size of discretionary measures is to use the "bottom-up approach", based on the list of individual measures. According to estimates of the Estonian government, individual measures implemented over 2009 totalled 9% of 2009 GDP. The major difference between "top-down" approach of the cyclically adjusted balance and the "bottom-up" approach is that the consolidation measures implemented in 2009 partially reversed the expansion planned for 2009. As such, the improvement of 9% of GDP is between what the 2009 budget balance would have been under unchanged policies and the 2009 outcome, rather than the change in the balance between 2008 and 2009. Planned nominal expenditure growth in the 2009 budget approved in 2008 stood at 9%, whereas actual expenditure fell by 3%. One example of the change in plans was that the law was changed so that indexation of pensions resulted in an increase of only 5% in 2009 rather than 14% that was planned based on the legislation in force prior to the crisis.

need to be carefully monitored and the parameters adjusted if necessary. Raising indirect taxes was a step in the right direction, while the hike in unemployment contributions is a debatable initiative because of the adverse consequences this has on the tax wedge on labour and employment, as discussed below.

... but also sizeable temporary and one-off measures

The consolidation programme also included temporary measures, some of which are set to expire in the next two years, and others when fiscal room permits. Starting from 1 July 2009, state contributions to the mandatory funded private pension pillar, amounting to 4% of payroll, were diverted to the state pension fund. This diversion was engineered mainly for accounting purposes, as under current Eurostat accounting rules the contributions to the first pillar form part of general government revenues, while contributions to the second private pension pillar (individual savings accounts) are treated as outside the government accounts. Thus, this policy move artificially boosted general

government revenues by 0.6% of GDP in 2009 and 1% of GDP in 2010. Despite being an accounting measure, this diversion has real consequences for individuals who incurred losses on their pension accounts – currently the system covers around two thirds of employees, and only oldest workers were not affected by this diversion. State contributions have partially resumed in 2011 (2% of payroll will be paid to individual accounts) and are expected to be fully resumed in 2012. The contributions may then be increased to 6% of payroll in 2014-17 in order to counterbalance the suspension of contributions in 2009-11. This will amount to diverting part of the contributions from the first back to the second pension pillar, as the social tax is not expected to rise. Just as accounting conventions cut the deficit in 2009-10, they will increase the deficit in the years ahead.

Wages of some public officials were frozen, and working time shortened for some public employees without compensation. The latter is a temporary measure but, due to the lack of data, it is difficult to separate this from an overall reduction in the public sector wage bill. Moreover, it is difficult to judge whether the current reduction in the wage bill represents a durable structural adjustment, or a temporary measure which will be reversed when fiscal space permits.

Pure one-offs, such as extra dividends from state-owned enterprises (Eesti Energia, Port of Tallinn) and sale of land, provided a significant boost to revenues in 2009. Overall, temporary and one-off measures improved the budget balance by 3.6% of GDP in 2009.[4] To a large degree, these measures compensated automatic stabilisers on the revenue side (where almost all stabilisers operate in Estonia).

Some stimulus measures were in place, supported by the use of EU structural funds

A more rapid use of the EU structural funds, which the EU allocates as part of its regional policy to reduce regional disparities, became an important factor in mitigating the pro-cyclical effect of fiscal tightening. Since October 2008, the Commission has proposed a series of measures to speed up the implementation of European cohesion policy programmes for the 2007-13 period, and the use of the funds in Estonia, including for boosting investment and employment, accelerated during the recession. The total amount of the EU grants increased from 2.2% of GDP in 2008 to 5.1% of GDP in 2009. Estonia is currently one of the top-performers in terms of EU grants absorption.

The measures that supported activity during the recession included various ALMPs (see Chapter 1), export support measures, support to start-ups and technological investments. These stimulus measures partly offset the negative impact of fiscal tightening. Importantly, meeting the euro-adoption criteria under such difficult circumstances has generated positive confidence effects which also compensated the negative effects of fiscal contraction. Still, this pro-cyclical policy aggravated the downturn. Although quantitative estimates of fiscal multipliers in a very small, open economy are surrounded with uncertainty, there is little doubt that they are positive.[5]

Still further consolidation measures are necessary

Thanks to the low level of public debt and the large-scale fiscal adjustment implemented during the crisis, Estonia's public finances are now in a better shape than in most OECD economies. OECD estimates suggest that to achieve the medium-term objective (MTO) of the Stability and Growth Pact (SGP), formulated for Estonia as the structural balance, further consolidation efforts of only 1% of potential GDP are needed. This is in line with the estimates of the European Commission for the 2009 "Sustainability

Report", according to which the permanent adjustment to the primary structural balance needed to fulfil the infinite horizon intertemporal budget constraint is 1% of GDP.[6] This consolidation requirement is significantly below of what is needed in most OECD economies (OECD, 2010a).[7]

These estimates are however subject to considerable uncertainty. First, the recourse to large temporary and one-off operations has complicated the assessment of the structural fiscal position, as judgment needs to be exercised regarding the classification of the operations as permanent or temporary. This continued in 2010, partially unintentionally, as one-off revenues from selling emission quotas further boosted revenues. Second, it is extremely difficult to correctly assess the post-crisis underlying fiscal balance due to the shift in the structure of the economy, which can influence the estimates of potential output and structural revenues.[8] As discussed in Chapter 1, it is likely that the crisis has negatively and permanently affected potential output. The structural deficit may therefore be higher and further consolidation may be needed in the medium term. Moreover, as the structure of the economy shifts away from consumption towards exports, revenues from taxes on goods and services, which currently account for about 40% of total tax receipts, are likely to decline. While the VAT and excise rate hikes implemented during the crisis will partially offset these effects, the post-crisis level of structural revenues may still not be adequate to support the current level of government expenditure.

Finding a new balance between revenues and spending

Against this background, finding the new balance between revenues and expenditure is one of the challenges for fiscal policy in the coming recovery. Expenditure restraint is important and should be supported by an improved fiscal framework, while raising efficiency of public spending remains a key priority (see Chapter 3). At the same time, with the level of expenditure on social protection significantly below many OECD countries,[9] and particularly the European countries, there is not much room for further adjustment. Further declines in operational expenditure are not very likely either. If it is needed, consolidation should come mostly from the revenue side, which is feasible given the relatively low tax burden. This is also an opportunity to review the tax system to further improve efficiency. Revenues raised from less distortive taxes could be used to ensure durable fiscal consolidation and later on to improve the revenue structure once sustainability is ascertained.

Pension reforms implemented to date are expected to mitigate the long-term fiscal impact of ageing

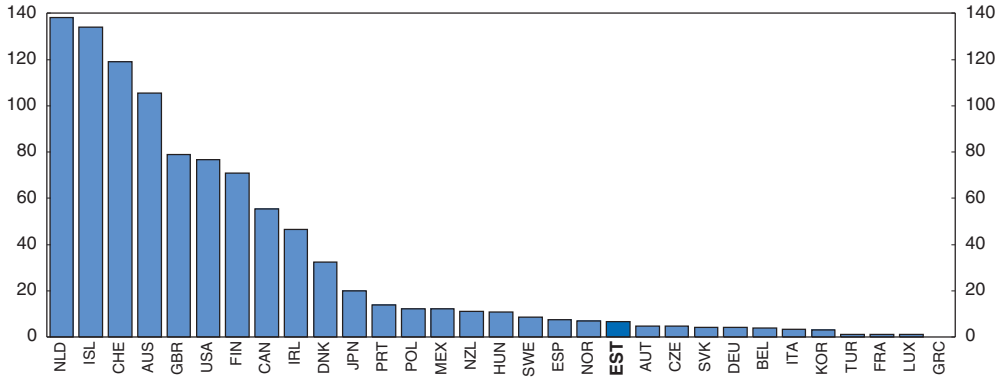
Estonia has taken important steps in addressing the challenge that population ageing presents for the long-term fiscal outlook. The old-age dependency ratio is expected to increase from 25% in 2010 to 56% in 2060 (European Commission, 2009b), which is close to the European average in terms of the level and the speed of increase. The working age population started to decrease from 2002. To mitigate the long-term fiscal pressures arising from these trends, a comprehensive pension reform was implemented in the 2000s, establishing a three-pillar pension system. The previous pay-as-you-go system, currently the first pillar, was reformed to strengthen work incentives by partially linking contributions to future pension benefits, while part of it was shifted to a mandatory fully-funded second pillar. The second pillar is a defined contribution scheme, with pension benefits depending on the contributions during the working career and the yields of the

pension funds. Tax incentives have been offered to encourage participation in the voluntary third pillar. Both the mandatory second and the voluntary third pillar are managed by private providers.[10]

The private pension system has been developing quickly, but it is still in its infancy. By the end of the third quarter of 2010, the amount of funds accumulated in private pension institutions amounted to 8% of GDP (Figure 2.5), mostly on the accounts in the second pillar, while the significance of the third pillar is limited with assets amounting to less than 1% of GDP. The development of occupational pensions, which play an important role in some OECD countries, has not been promoted. It would be good to review this approach in the future and develop a regulatory and tax framework for occupational pensions. Employers' involvement in pension provisions may be advantageous for negotiation of fees with pension providers and with regard to financial education and advice to plan members.

Figure 2.5. **Assets in private pension funds, 2007**

% of GDP



Note: Data for Estonia refer to the end of the third quarter of 2010.

Source: OECD, *Pensions at a Glance*, 2009; Ministry of Finance.

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The retirement age has been gradually increased and is at present 63 years for men and 60.5 years for women (expected to rise to 63 years by 2016). As part of the fiscal consolidation strategy, amendments to the State Pension Insurance Act were approved, according to which the retirement age would rise by three months per annum beginning in 2017 until it reaches the level of 65 years by 2026. Labour force participation among older workers, particularly women, had increased significantly between 2000 and 2008, to levels that are high by OECD and particularly European standards and even higher than in some neighbour Scandinavian countries (Table 2.2).

These developments are expected to mitigate the long-term fiscal impact of ageing. Indeed, despite an increase in old-age dependency ratio which is compatible with many OECD countries, public pension expenditure is expected to decline by 1.1 percentage points in relation to GDP between 2010 and 2050 (Figure 2.6). Nevertheless, the adequacy of old age provisions remains an issue, which may in the future put additional pressure on public finances. The current public pension benefit ratio (*i.e.* the ratio of the average pension to the average wage) is one of the lowest in the EU at 36% and close to conventional poverty lines (OECD, 2010b). A further decline of the public pension benefit ratio to 16% by 2060, to the lowest level in the EU, is an assumption underpinning the European Commission

Table 2.2. **Employment rates among 55-64 and 65-69-year-olds**

Percentage of the age group population, 2008

	55-64	65-69
Iceland	83.8	51.8
Sweden	74.0	17.6
Norway	69.5	25.5
Japan	68.7	37.4
Estonia	**66.7**	**20.8**
USA	64.9	31.1
Korea	61.8	42.2
Denmark	60.3	13.2
Finland	59.3	9.7
OECD average	**54.2**	**18.3**
Czech Republic	49.6	10.3
Euro area average	**48.1**	**9.7**
Hungary	42.1	4.8
France	41.5	4.2
Italy	37.0	7.3
Poland	34.5	9.6

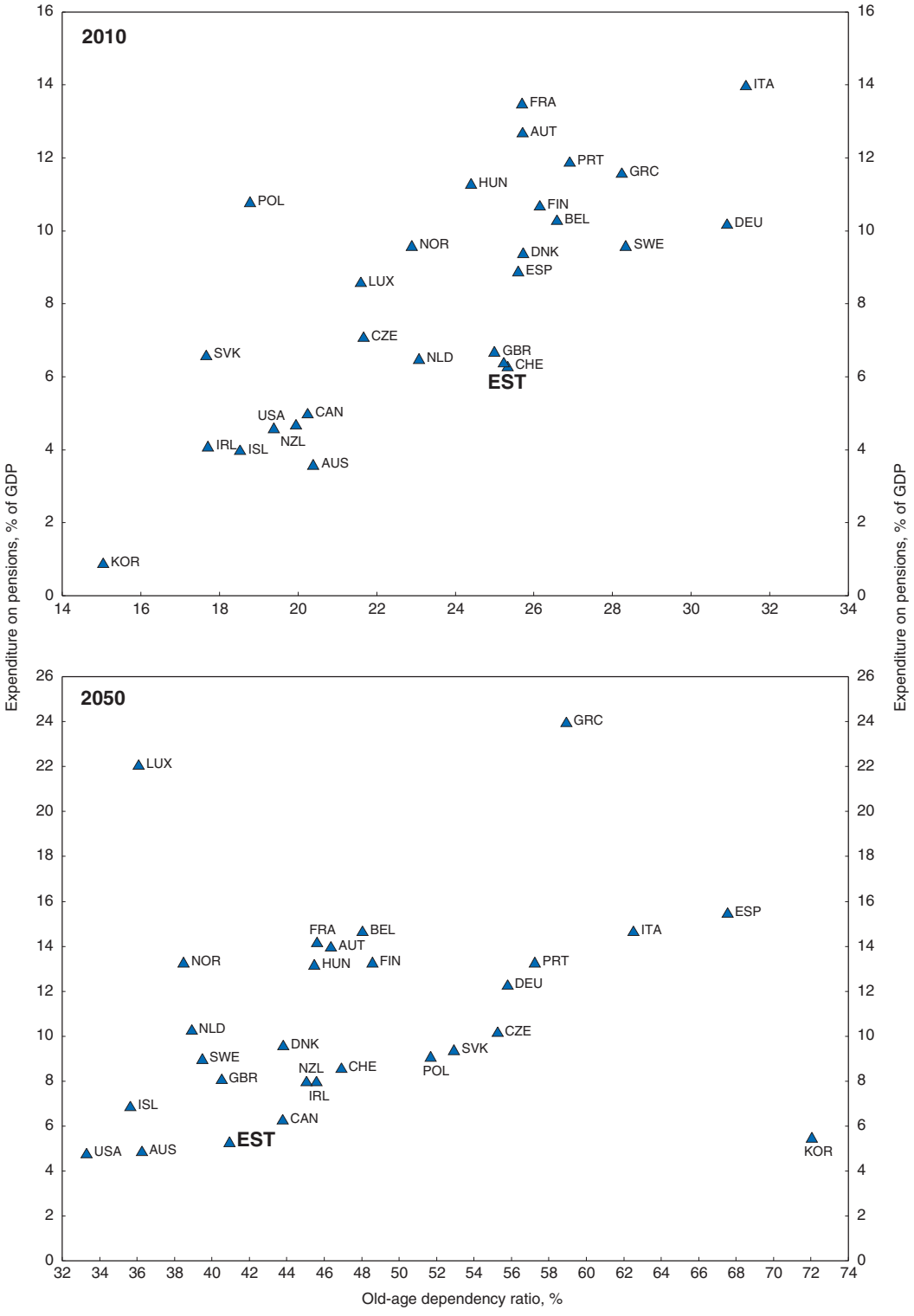
Source: OECD, *OECD Labour Force Surveys*.

long-term projections of public pension expenditure (European Commission, 2009b).[11] It can only be realistic if income streams from the second pillar become significant. Even so, under the current projections, the total pension benefit ratio (including both pillars) is expected to decrease to 22% by 2060.[12] To the extent that such rates become socially unsustainable, this suggests that the favourable outlook for ageing-related spending (capped at below 15% of GDP over 2010-60) may not materialise. At the same time, the assumptions underlying the 2009 projections do not include the increase in the retirement age that will reach 65 years by 2026. Other costs related to population ageing, such as health-care expenditure, are projected to increase moderately, although under certain scenarios the increase in healthcare spending may be higher than the 1.1 percentage points of GDP of the baseline scenario.

The second pension pillar needs to be protected

The development of private pension schemes that would generate a sufficient stream of retirement income is an important factor to support the adequate living standards of future pensioners. Preventing the erosion of the contributions to the second pension pillar is therefore of vital importance. Additional efforts may be justified to encourage participation in the voluntary third pillar. In this context, the recent decision to suspend state contributions into the second pillar, even if justified by exceptional circumstances, sets an unfortunate precedent. Even if higher contributions over 2014-17 counterbalance the suspension of contributions in 2009-11, as envisaged by the government, the uncertainty such interventions create can undermine the trust of the population in the pension system and discourage participation in the voluntary third pillar. The negative impact on private pension funds should also be taken into account. Besides, the compensation mechanism that envisages increasing the state contributions to the second pillar over 2014-17 to 6% (which will amount to diverting part of the contributions from the first pillar to the second pillar, as social tax is not expected to rise) will in turn have an impact on sustainability of the first pillar.

Figure 2.6. **Old-age dependency and public pension expenditure**



Note: The old-age-dependency ratio is population aged 65 plus as a % of population aged 15-64. Expenditure on pensions excludes public-sector workers for Canada and the United States and the basic pension for Korea.

Source: OECD, *Population Statistics Database*; OECD, *Pensions at a Glance 2011*, forthcoming.

StatLink http://dx.doi.org/10.1787/888932378321

It can be argued that current Eurostat accounting rules that treat contributions to the first pillar as part of general government revenues, while contributions to the mandatory funded second pillar accrue outside of government accounts, unfairly punish the countries that introduced important pension reforms with the aim to ensure fiscal sustainability in the long-term. To begin with, current budget positions of these countries may look worse than those of the countries that lag behind in addressing the challenge of ageing population. Moreover, in combination with the SGP 3% deficit threshold for the general government balance, such treatment may be viewed as particularly problematic. The proposals for reforming the way in which the impact of pension reform is accounted for in the implementation of the SGP are currently being discussed at the European level.[13] These reforms are expected to ensure a level playing field within the SGP. Estonia needs to actively participate in these discussions.

Improving the fiscal framework

The crisis highlighted the pro-cyclicality of the budgetary framework

At the EU level, fiscal policy in Estonia has been guided by the Stability and Growth Pact (SGP) framework. The country's adherence to the SGP debt and headline deficit rules has been commendable. Estonia is one of the very few EU countries that has never been subject to the Excessive Deficit Procedure, having always complied with the 3% headline deficit limit.[14] In practice, prior to the crisis the Estonian government had followed a stricter "balanced budget or better" rule: until 2006, the draft budget was balanced, while in 2007 and 2008 it targeted moderate fiscal surpluses. The level of gross public debt has been well below the 60% of GDP threshold and in fact the lowest in the EU pre- and post-crisis.

The fiscal framework, underpinned by a strong political commitment to a balanced budget and low debt, has nevertheless failed to prevent the structural deterioration of the fiscal position during the boom years and has resulted in pro-cyclicality of fiscal policy, as expenditure soared at the time when the economy operated significantly above potential. Correspondingly, little room for fiscal manoeuvre was left when the crisis hit, although the fiscal reserves (Box 2.1) provided a useful buffer in the early stages of the downturn. The swift response of the authorities is laudable as it helped prevent a fiscal collapse and paved the way for entry into the euro area, which boosted confidence. Nevertheless, letting the automatic stabilisers work in downturns is generally a preferable option. Moreover, during this downturn, the pro-cyclical effect of fiscal contraction was mitigated by the accelerated use of the EU structural funds, the offsetting effect that is unlikely to be present in future downturns. Fast-track consolidation also induced some controversial policy moves, such as the suspension of state contributions to the second pension pillar, or the request for extra dividends from the state-owned enterprises. This recourse to large one-off and temporary measures has also complicated the assessment of the underlying fiscal position.

The budgetary framework needs to be enhanced with a mechanism that would help to attenuate, rather than amplify the cycle. This is particularly important in the absence of independent monetary policy within the euro area.[15] Moreover, with euro adoption, nominal interest rates are expected to decline due to the elimination of any exchange rate risk premium and a lower default-risk premium, as well as the emergence of more liquid and transparent capital markets. At the same time, as a catching-up economy, Estonia is likely to face higher structural inflation in the coming years. Thus below-equilibrium real interest rates may again trigger next boom-bust cycle. Fiscal policy is one of the major tools to play against these developments.

In a similar vein, economic policies in general and fiscal policy in particular paid little attention to the accumulation of large macroeconomic imbalances, such as large and widening current account deficits, surging housing prices and the expansion of private debt. In this respect, the situation in Estonia was similar to that in Ireland and Spain, the EU member countries in which budget surpluses prior to the crisis were accompanied by unsustainable developments in the private sector. Both countries saw their budget positions deteriorate sharply with the onset of the crisis. One major difference, however, is that in Ireland the government had to step in to rescue the banking sector. This has not happened in Estonia, as the well-capitalised banking sector supported by parent Scandinavian banks has managed to weather the crisis without any state intervention, even though non-performing loans have risen sharply (Chapter 1). Nevertheless, the impact of the unsustainable developments in the private sector on the budget position were similar: in all three countries, widening macroeconomic imbalances went hand in hand with the overheating of the economy, which temporarily inflated the tax base and triggered fiscal expansion, while revenues were subsequently sharply hit by the unwinding of these imbalances.

An important implication, for Estonia and other countries, is that fiscal policy should be viewed in a broader context of macroeconomic developments. Indeed, one of the proposals for reforming economic governance in Europe is to introduce a new mechanism for macroeconomic surveillance at the EU level alongside the budget-focused SGP (OECD, 2010c). This would include establishing "scoreboards" that would monitor various macro-economic indicators to allow for an early detection of unsustainable developments. Estonia may benefit from developing such a monitoring system on the national level. This monitoring would be complementary to the ongoing assessing of the cyclical position of the economy and the structural balance and would provide some valuable guidance to fiscal policy. It is notoriously difficult to estimate the cyclical indicators in real time, and in the case of Estonia this task is further complicated by the ongoing structural changes in the economy, its small size and openness. It can be argued that fiscal loosening during the boom years occurred to a large extent due to the overestimation of the structural component of revenues, as in several other OECD countries, linked in turn to overoptimistic assumptions of potential output (Joumard and André, 2008). At the same time, numerous signs of overheating were present and provided a signal about the likely temporary nature of the revenue boom. If taken into account as part of fiscal surveillance, they could have induced a more timely and appropriate fiscal policy response.

Fiscal rules and institutions need to be strengthened

To address these challenges and further strengthen fiscal performance, the budgetary framework needs to be enhanced with a well-designed fiscal rule (consistent with the SGP) that will help prevent the erosion of the fiscal position during the periods of revenue buoyancy. The SGP debt and headline deficit rules, while useful at the EU level, may not sufficiently constrain fiscal policy during the cyclical upswings (OECD, 2010c). Even the "balanced budget or better" rule followed by Estonia was not enough to prevent fiscal loosening during the boom. The proposal to enshrine the balanced budget requirement into law that is currently being discussed in Estonia would reinforce government commitment to fiscal discipline, but do little to address the issue of pro-cyclicality.

The rules based on the targets for the structural balance in principle address the issue of pro-cyclicality, as they would not interfere with the working of the automatic stabilisers.

A target for the structural balance is a useful benchmark for fiscal policy in the medium-term, and in the context of the "corrective arm" mechanism of the SGP, the medium-term objective (MTO) for Estonia has been formulated as the balanced budget in structural terms since 2005. However, the difficulties of accurately tracking the cyclical indicators in real time has limited the effectiveness of this target for guiding fiscal policy. Indeed, as the crisis hit, it became apparent that the underlying fiscal gap was in fact much larger than previously thought. With the benefit of hindsight, it appears that the government needed to target larger surpluses, but the situation looked different *ex ante*. Moreover, from a political economy perspective, even though fiscal prudence in Estonia is underpinned by social consensus, such large surpluses would have been challenging to justify. Nevertheless, given the importance of the structural balance for assessing the sustainability of the fiscal position, the government needs to augment the work on the estimates of the cyclical indicators and publish more detailed information about the business cycle and the underlying fiscal position, reflecting associated uncertainties.

A public expenditure rule is more likely to be binding during the cyclical upswing. Such rules are easy to implement and monitor, and have counter-cyclical properties, allowing the full working of automatic stabilisers on the revenue side (Anderson and Minarik, 2006), where such stabilisers mostly operate in the case of Estonia. By setting up *ex ante* multi-year expenditure ceilings consistent with the cyclical position of the economy, the government pre-commits to these ceilings, which can be particularly useful in an environment of rising pressures for fiscal expansion when revenues outperform projections.[16] Developing a medium-term budgetary framework and supplementing the deficit target by an expenditure rule on a multi-year basis was recommended in the previous *Survey*, and this recommendation remains valid. The government State Budget Strategy, a document published annually outlining fiscal policy principles and priorities of the government, already has a medium-term angle, but expenditure projections for the next four years are purely indicative and have been revised upwards in the past. The expenditure rule can be implemented by making the explicit commitment not to exceed the overall spending envelope for at least three out-years. This envelope can become legally binding, *i.e.* the revisions would only be possible with parliamentary approval. Flexibility to reallocate expenditure within the budget should however be preserved. It is also important that fiscal rules apply to all levels of the general government budget, not just the central government. The recently introduced loan limits for local governments,[17] as well as the proposal to enshrine the balanced budget of the general government into law are welcome. Further development of the fiscal framework, including the introduction of expenditure ceilings, should also go in this direction.

Expenditure rules do not prevent pro-cyclical changes in the tax system. Due to a preference for a relatively low level of taxation in Estonia, and taking into account the recent increase in tax burden, there is indeed a risk that some tax cuts will be implemented or tax expenditures introduced in the next upturn in a way which is fiscally non-neutral. One way to address this issue is to take account of tax expenditures while setting expenditure ceilings. Generally, while revenue-neutral reforms, which make the tax system more growth-friendly, are welcome, tax reductions should be assessed in terms of their cyclical appropriateness and, relatedly, their effect on fiscal sustainability.

The rule-based framework can be further strengthened by setting up a fiscal council or another independent institution, as has been done in a number of OECD countries (Hagemann, 2010). There is growing consensus that fiscal councils may help to strengthen

the credibility of medium-term fiscal rules in the countries committed to fiscal prudence (Von Hagen, 2010). The mandate of the fiscal council can usefully include assessing the cyclical position of the economy and the structural balance, providing an input into macroeconomic assumptions underlying the budget preparation, and monitoring budget outcomes and possibly also macroeconomic indicators for the purpose of early detection of unsustainable developments. A council can also help with communication of sustainable fiscal policy. Likewise, it can perform independent analysis of fiscal issues, for example assessing potential risks to sustainability of the second pension pillar.

Possible capacity constraints in a small country may raise concerns about the feasibility of setting up another public body. A fiscal council could in principle be established by giving an existing independent institution the respective mandate, which would reduce the up-front costs and allow advantage to be taken of the expertise accumulated in these institutions. At the same time, it is crucial to create appropriate firewalls to guarantee independence of staff and operations.

Enhancing tax system to support fiscal consolidation and economic growth

Tax system is simple and relatively efficient

Estonia's tax system compares favourably internationally in terms of ease of compliance and administration. The country is ranked 32nd out of 183 countries in the "Ease of Paying Taxes" indicator of the World Bank "Paying Taxes" study (2010), which compares across the globe three major aspects of business taxation – the number of tax payments, the number of hours to comply with the company's tax obligations and the total tax rate. In particular, the time to comply with business taxes is very low by international comparison. Both business and individual taxpayers widely use the possibility to declare taxes on-line via the e-Tax Board. The administrative simplicity is supported by the design of corporate income tax that is levied on distributed profits only, while the flat personal income tax rate is unified with the rate applied for corporate income tax.

The tax burden has increased, following consolidation measures, from around 32% in 2007-08 to around 36% of GDP, which is the OECD average, but relatively low compared to other EU countries and particularly Nordic peers. The reliance of the tax system on indirect taxes[18] *versus* income taxes is very high in Estonia compared to other OECD economies (Table 2.3). Following VAT and excise hikes in 2009-10, Estonia now collects about 15% of GDP from taxation of goods and services, which is about 40% of total tax revenues, the highest share in the OECD. By contrast, income taxes are among the lowest in the OECD, both as a share of GDP and as a share of total revenues. This reflects the reduction of personal income tax rates between 2004 and 2008 to the levels that are among the lowest in the OECD (Figure 2.7), minimal progressivity of personal income tax[19] and a special regime of corporate income taxation. In principle, this structure is considered to be favourable for growth, as indirect taxes are ranked higher in terms of growth-friendliness than income taxes, especially corporate income tax (Johansson *et al.*, 2008). There is also empirical evidence that stronger progressivity of personal income tax is associated with lower GDP per capita in the long run (Arnold, 2008), suggesting that minimal progressivity of Estonian personal income tax is growth-enhancing, although this lack of progressivity also tends to reduce automatic stabilisation (European Commission, 2010a).

Estonian corporate taxation is unique among OECD countries in that the tax falls only on distributed profits. This has advantages in terms of avoiding double taxation of interest

Table 2.3. **Tax burden and composition of tax revenues**

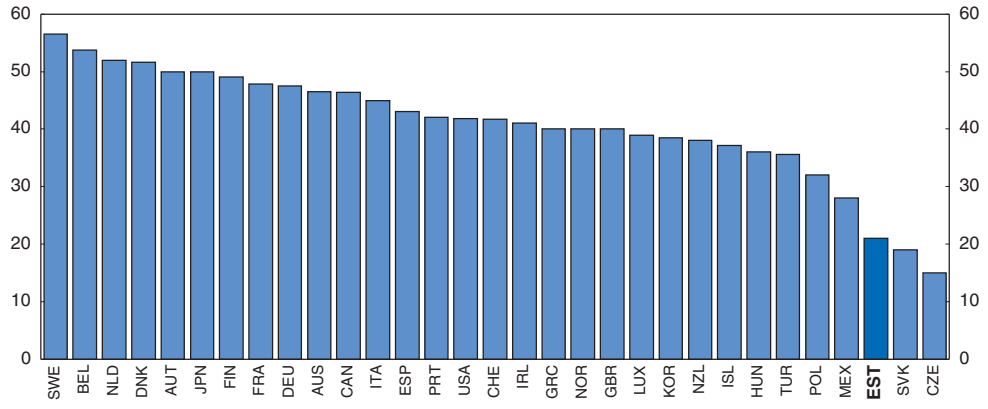
Tax revenues as % of GDP, 2008

	Goods and services	Corporate income	Personal income	Social Security	Property	Other	Total tax revenue
Denmark	15.6	3.4	25.2	1.2	2.0	0.7	48.2
Sweden	12.8	3.0	13.8	15.4	1.1	0.2	46.3
Belgium	10.8	3.3	13.5	13.9	2.2	0.4	44.2
Italy	10.6	3.7	11.6	13.5	1.9	2.0	43.3
France	10.6	2.9	7.5	17.3	3.4	1.5	43.2
Finland	13.0	3.5	13.3	12.1	1.1	0.2	43.1
Austria	11.6	2.5	9.9	17.1	0.5	1.2	42.7
Norway	10.9	12.5	9.1	8.9	1.2	0.0	42.6
Hungary	14.9	2.6	7.8	13.6	0.9	0.4	40.2
Netherlands	11.8	3.2	7.5	14.5	1.6	0.5	39.1
Germany	10.5	1.9	9.6	13.9	0.9	0.2	37.0
Iceland	13.6	1.9	13.2	3.0	2.2	2.8	36.8
Czech Republic	11.5	4.2	3.7	16.1	0.4	0.2	36.0
United Kingdom	10.3	3.6	10.7	6.8	4.2	0.2	35.7
OECD-30 average	**10.6**	**3.6**	**9.2**	**9.8**	**1.9**	**0.6**	**35.7**
Estonia	**14.7**	**1.8**	**5.7**	**13.1**	**0.3**	**0.0**	**35.7**
Poland	13.0	2.7	5.4	11.6	1.2	0.3	34.3
New Zealand	11.4	4.4	13.7	0.0	1.9	2.2	33.7
Spain	8.3	2.8	7.1	12.1	2.3	0.6	33.3
Greece	11.4	2.5	4.8	12.2	1.5	0.2	32.6
Canada	7.6	3.3	12.0	5.4	3.4	0.5	32.3
Slovak Republic	10.5	3.1	2.8	12.0	0.4	0.5	29.3
Switzerland	6.3	3.3	9.1	6.7	2.2	1.5	29.1
Ireland	10.7	2.8	8.0	5.3	1.8	0.1	28.8
Japan	5.1	3.9	5.6	10.9	2.7	0.1	28.1
Australia	7.4	5.9	10.2	1.4	2.2	0.0	27.1
Korea	8.4	4.2	4.0	5.9	3.2	0.9	26.5
United States	4.6	1.8	9.9	6.5	3.2	0.0	26.1
Turkey	11.0	1.8	4.0	6.1	0.9	0.5	24.2

Note: Data for Estonia refer to 2009. Data for Mexico are not included due to the insufficently detialed breakdown by individual components.
Source: OECD, *OECD Revenue Statistic*, 2010 edition, 1965-2009.

Figure 2.7. **Top statutory personal income tax rate on wage income, 2009**

%



Source: OECD, *Tax Database* (*www.oecd.org/ctp/taxdatabase*).

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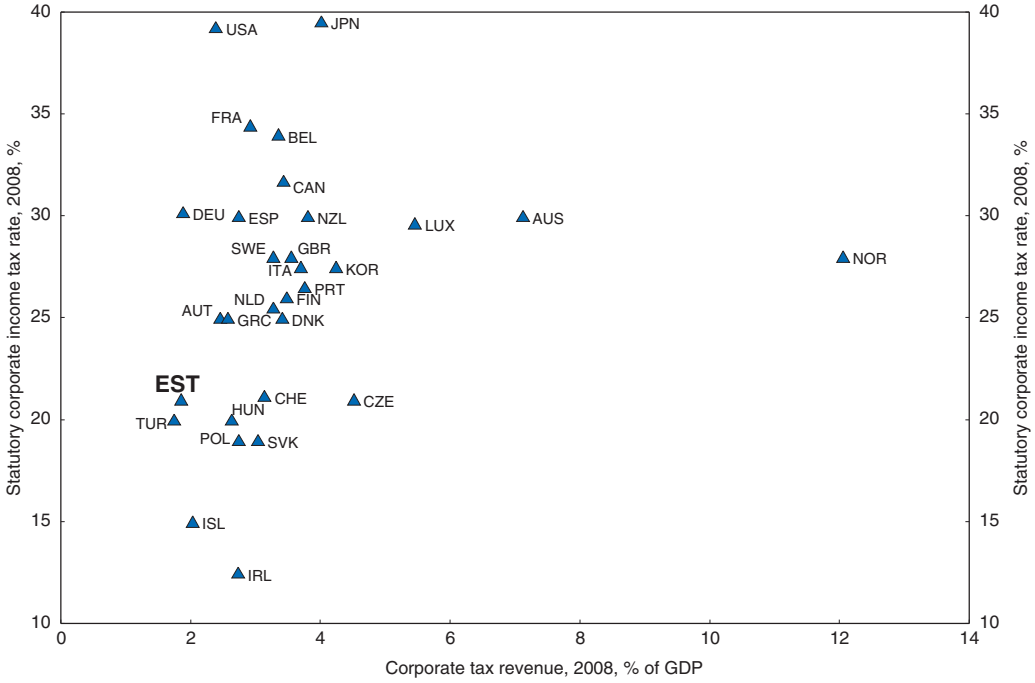
income and considerable administrative simplicity. However, it yields comparatively little revenue (Figure 2.8) and could be open to abuse. The *2009 OECD Survey* recommended monitoring the system and reconsidering it should serious distortions arise. The government commissioned a study assessing the impact of the current corporate taxation system on investment and economic development.[20]

Figure 2.8. **Statutory corporate income tax rate and corporate tax revenue**



Note: Tax revenue as a percentage of GDP refers to 2009 for Estonia and 2008 for latest for other countries.
Source: OECD, *Revenue Statistics* and *Tax Databases* (*www.oecd.org/ctp/taxdatabase*).
StatLink http://dx.doi.org/10.1787/888932378359

The labour tax wedge could be reduced

Despite the low level of personal income tax, the tax wedge on labour is relatively high (see Chapter 1) due to a large weight of social security contributions in total labour cost. The tax wedge has increased during the recent consolidation, as unemployment insurance contributions were raised from 0.9 to 4.2% of the payroll. The effect was partially offset by the temporary suspension of mandatory individual contributions to the second pension pillar amounting to 2% of the payroll. The latter measure has been partially reversed in 2011, and full individual contributions are expected to be resumed in 2012, but the government is contemplating keeping unemployment insurance contributions at the new higher level. While consolidation requirements need to be taken into account, it would be advisable to reconsider this measure and focus tax increases on less distorting taxes instead. Another proposal has been put forward to introduce a cap on social security contributions, which would reduce the tax wedge on high earners. As discussed in Chapter 1, reducing the social contributions for low-paid workers would be a more efficient way to lower the overall labour tax wedge, as it will align wages with productivity of these workers while supporting their purchasing power.

Reducing social security contributions should not jeopardise sustainability of the social security system. The social security system needs to be viewed as an integral part of the general government and therefore the sustainability concept has to be applied to the general government budget, and not to its individual parts. Any financing gap in the social security system can be covered from general government revenue and *vice versa*.

There is scope to increase the receipts from less distorting taxes

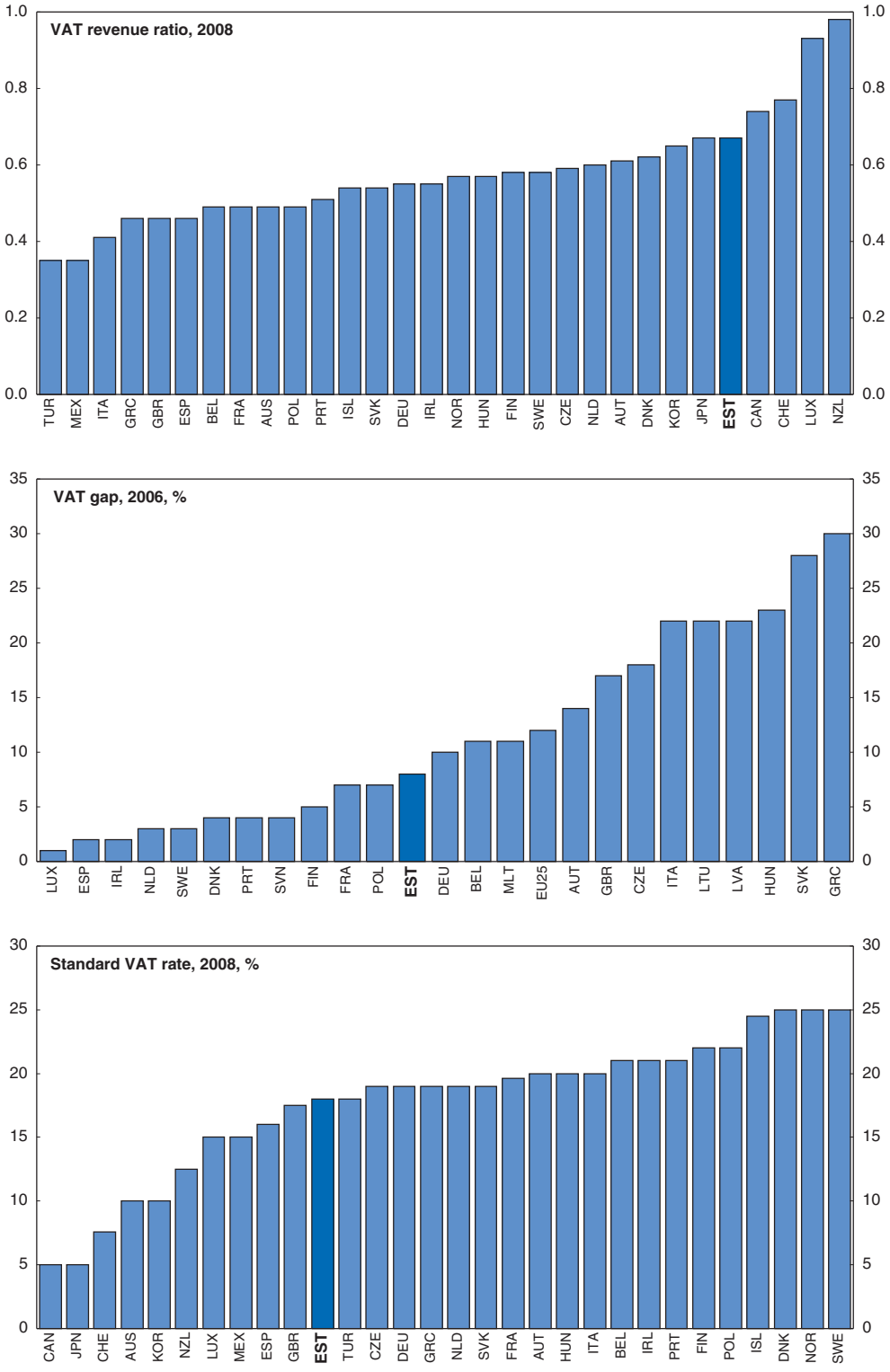
Indirect taxes, which are less distorting than labour and capital taxes, already play the central role in the Estonian tax system, and the decision to raise VAT and excises as part of the consolidation programme was a step in the right direction. Further excise hikes on tobacco are planned, and there is potential to raise VAT revenues further. The VAT system is relatively efficient, as demonstrated by the level of VAT Revenue Ratio (VRR) (Figure 2.9, upper panel). The VAT Revenue Ratio provides a comparative measure of countries' ability to effectively capture the potential tax base for VAT. The VAT system is considered "efficient" when it is applied to the entire potential tax base at a single rate and where all the tax due is collected by the tax administration.[21] The Estonian VAT system seems to score well on both dimensions. The efficiency of collection that can be measured separately by the so called VAT gap compared favourably with other EU economies in 2006, the year for which such comparative assessment was made (Figure 2.9, middle panel). At the same time, revenue losses from the use of the reduced rate are among the lowest in the EU countries (Copenhagen Economics, 2007).

The VAT Revenue Ratio nevertheless dropped from 80% in 2007 to 67% in 2008 and stayed at a similar level in 2009. As the reduced rate was increased from 5 to 9%, and eliminated for some items, this suggests that compliance may have suffered during the recession.[22] This decline can also be linked to the increase in tax arrears and bankruptcies.

VAT efficiency can be further improved by strengthening administration, applying the standard rate to all goods and services for which the reduced rate is still in place, and phasing out exemptions. The reduced rate is currently applied to books and periodical publications, medicines and medical equipment for the personal use of the disabled and accommodation services. This is a relatively limited list compared to other EU member countries. Exempt from VAT[23] are certain services of social character, such as universal postal services, medical services, certain social and educational services, and transport of ill, injured or handicapped persons in special purpose vehicles.[24] Equity considerations should be addressed by measures to compensate low-income households for the negative impact of raising the reduced rate and phasing out of exemptions on services of social character. Such targeted social policy is preferable to the application of the reduced VAT rate and exemptions that benefit low and high income households. There is also scope for increasing the standard rate which is below the Nordic neighbours in particular (Figure 2.9, lower panel).

Property taxes, in particular recurrent taxes on immovable property, have been found to be the least harmful for growth (Johansson *et al.*, 2008). With the share of property taxes in GDP (Table 2.3) and total revenues that are the lower than in any OECD country, Estonia significantly underutilises these taxes compared to other OECD economies. Raising the share of property taxes in total tax revenue and in relation to GDP could both support consolidation and improve efficiency. There is scope to raise more revenues from land tax. Land valuation is infrequent and is currently out of line with market rates. It is important

Figure 2.9. **Value added tax**



Note: VAT revenue ratio = (VAT revenue)/([consumption expenditure – VAT revenue] **x** Standard VAT rate). 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: Ministry of Finance; OECD, *Consumption Tax Trends*, 2010; Reckon, 2009.

StatLink http://dx.doi.org/10.1787/888932378378

to ensure that the next round of land valuation tentatively planned for 2012 brings land prices closer to market values.

Property tax in Estonia is levied exclusively on land, while buildings and apartments are not taxed. This approach goes back to the early 1990s, and was to support the objective of reinstating individual property rights for former owners or their heirs, irrespective of their present place of residence. The idea was to stimulate the more efficient use of reinstated and privatised land while not discouraging development by taxation of improvements (Malme and Young, 2001). Besides, as in other transition countries, this mechanism was intended to protect the residents of privatised apartments whose payment capacity was often not correlated with the market value of the acquired asset. The government needs to review this approach with the aim of identifying whether it still serves its purpose. If social dimension remains a concern, bringing buildings and apartments into the tax base should be accompanied with transfers to low-income households.

To the extent that the favourable tax treatment of housing can fuel property bubbles, fiscal instruments may play a role in addressing macroeconomic imbalances arising from unsustainable increases in housing prices. Deductibility of mortgages from income tax and exemption from capital gains tax of the sale of the primary residence may artificially boost housing investment and distort capital allocation, as discussed in the previous *Survey* (OECD, 2009a). Correcting these policies would reduce these distortions and counteract the emergence of macroeconomic imbalances. A draft law came into force in 2011 limiting the tax exemption to the sale of one permanent residence during a period of two years. This is a welcome step. At the same time, there seems to be a lack of political and social consensus to phase out deductibility of mortgage interest payments. While some tax expenditures, namely deductibility of study loan interest payments and trade union membership, were eliminated during consolidation, deductibility of mortgage interest payments has remained intact.

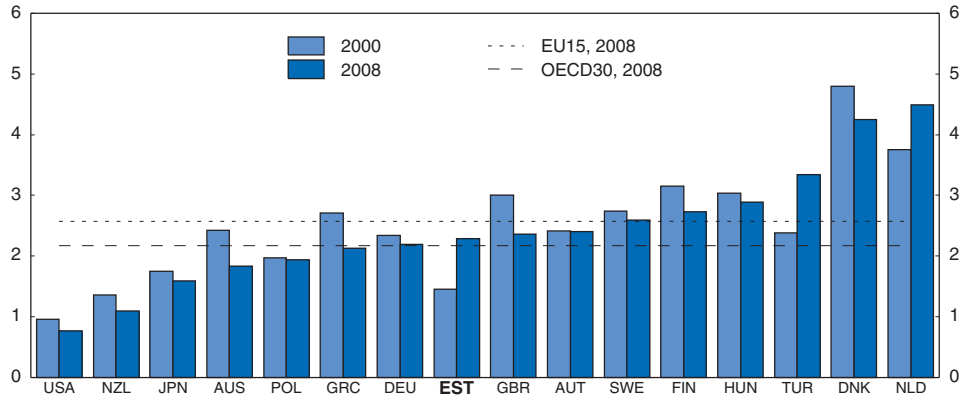
Environmentally related taxation and emission trading systems can play an important role in addressing environmental challenges, and the use of these instruments is increasing in the OECD economies (OECD, 2010e). Apart from their environmental objectives, well-designed environmental taxes can be used for fiscal consolidation and rebalancing of the tax structure.

The use of economic instruments in environmental policy in Estonia goes back to 1991, when excises duties on motor fuels, natural resource charges and pollution charges were introduced. In 2005 the government launched an Ecological Tax Reform, which stressed the need to address environmental challenges caused by oil shale energy generation and motor transport. One of the key objectives of the reform was to shift taxation from taxing income to taxing the use of natural resources and pollution of nature and to put the "polluter pays principle" into practice. Natural resource and pollution charges were subsequently raised significantly; the tax rates on fossil fuels were increased; and taxes on fossil fuels previously not taxed were introduced. As a result of these measures, the share of environmental taxes in GDP has increased in recent years and in 2008 was above the OECD average, although below the average for the EU (Figure 2.10).

The fuel excise tax remains the main source of environmentally-related revenues, as in most OECD countries. It accounted for more than 80% of total environmental revenues in 2008. Following a series of hikes during the recent period of fiscal consolidation (see Annex 2.A1), excise duties on diesel and petrol have increased to the levels above the minimum required by the EU, although both fuels are still taxed lighter than in many

Figure 2.10. **Revenues from environmentally related taxation**

% of GDP



Source: OECD/EEA, *Database on instruments used for environmental policy and natural resources management* (*www2.oecd.org/ecoinst/queries/index.htm*).

StatLink http://dx.doi.org/10.1787/888932378397

European OECD members (Figure 2.11).[25] Diesel is taxed at the rates below petrol, although it has higher content of pollutants, especially NO_X. Such approach creates a bias in favour of the relatively more polluting motor fuel.[26]

Estonia does not impose any tax on ownership or registration of a motor vehicle, except for heavy vehicles. Most OECD economies have these taxes alongside fuel excise taxes (OECD, 2009b). In principle, fuel taxes are supposed to be more efficient as they tackle usage, rather than ownership. At the same time, a motor vehicle tax if differentiated by air pollution and energy consumption levels can become an efficient instrument to address the environmental objectives by influencing consumer choices towards more ecologically-friendly cars. Such taxes may disadvantage low income households in particular in rural areas where public transport is not well developed. The government needs to study carefully various aspects of introducing differentiated motor vehicle taxes to arrive at an optimal taxation scheme.

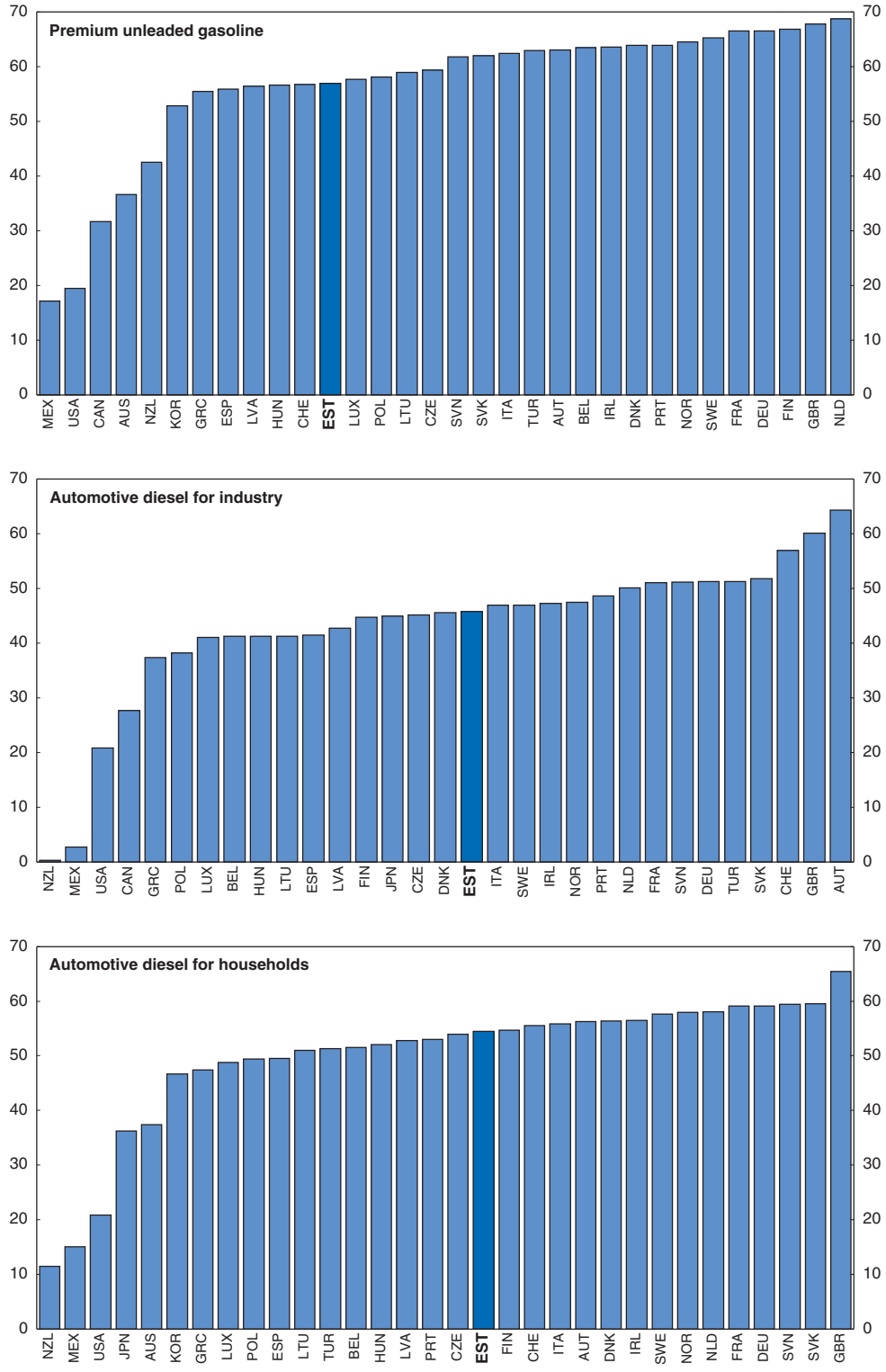
Distance charges, differentiated by vehicle type, time of the day and route of travel, are considered to be the first best option to tackle other external cost of transport, such as local pollution and congestion. In principle, well-calibrated fuel taxes and sufficiently differentiated road distance charges may be sufficient to achieve full internalisation of external cost of transport (OECD, 2009c), implying that other taxes on motor vehicles may not be needed. Estonia could consider introducing an innovative road pricing scheme differentiated by air pollution and energy consumption characteristics of vehicles. The complexity of designing and administering such a scheme imply that such a project is unlikely to be implemented in the near future. In the meanwhile, differentiated taxation of vehicles may be a useful alternative from the environmental and fiscal point of view.

While the significance of natural resource and pollution charges has increased, there is room to increase environmental taxation by introducing new taxes and raising tax rates.[27] The government should continue with ecological reform pursuing both environmental and revenue-raising objectives.

In order to increase budget flexibility, environmental expenditures were disconnected from the receipt of the excise duty on electricity and partially from the receipt of

Figure 2.11. **The share of taxes in fuel prices**

%, 2009



Source: OECD, *Energy Prices and Taxes*, second quarter 2010.

StatLink http://dx.doi.org/10.1787/888932378416

environmental charges. As a result, the part of the increase of environmental charges exceeding the level of receipts of 2009 will be allocated to the general budget, instead of the Environmental Investment Centre. This is a step in the right direction, as environmental taxation should be viewed as part of the general government budget and environmental expenditure should not necessarily be linked to the receipts of environmental revenues.

Box 2.3. **Recommendations on fiscal policy**

Improving the fiscal framework

- Augment the work on estimates of the structural balance. Publish more detailed information about the business cycle and the underlying fiscal position, reflecting associated uncertainties.
- Enhance the budgetary framework with multi-year expenditure ceilings, also including tax expenditure. The ceilings should take into account the cyclical position of the economy in order to ensure the structural budget balance in the medium term. The expenditure rule can be implemented by making the explicit commitment not to exceed the overall spending envelope set up in the State Budget Strategy for at least three out-years.
- Publish a detailed old-age income replacement sustainability report. Ensure that losses on individual pension accounts due to suspension of the state contributions to the second pension pillar are fully compensated.
- Set up an independent entity to: provide an input into macroeconomic assumptions underlying the budget preparation; assess the cyclical indicators; monitor the budget outcomes and raise public awareness about the directions of fiscal policy, in particular regarding sustainability. Such a "fiscal council" could also be established by giving an existing independent institution the respective mandate.

Enhancing the tax system to support fiscal consolidation and economic growth

- Reduce the labour tax wedge, particularly for low-income workers, provided that new revenue sources can bridge the revenue gap.
- Further strengthen VAT administration, phase out exemptions from VAT and apply the standard rate to all goods and services in order to compensate reductions in more distorting taxes.
- Increase the share of property taxes by bringing land valuations in line with market rates. Consider introducing a tax on buildings.
- Continue with ecological tax reform pursuing both environmental and revenue-raising objectives. Consider introducing a tax on the use and the registration of motor vehicles differentiated by air pollution and energy consumption characteristics.

Notes

1. The underlying fiscal balance is the headline general government balance adjusted for the impact of cyclical fluctuations and one-offs (*i.e.* large and non-recurrent fiscal operations). It is similar to the structural balance indicator used by the European Commission. Throughout the text, "underlying" and "structural" balance will be used interchangeably.
2. See OECD (2009a) for the analysis of fiscal policy stance before the crisis.
3. See European Commission (2010a), Purfield and Rosenberg (2010).

4. At the same time, a one-off of 0.3% GDP worsened the budget balance. This is related to the court ruling requiring the tax office to compensate income tax collected a few years ago. Net effect of temporary and one-off measures was therefore 3.3% of 2009 GDP.
5. See also European Commission (2010a).
6. *I.e.* ensuring that the present value of future fiscal surpluses is equal to the current stock of gross public debt. This also takes into account age-related expenditure. As the latter is estimated to remain flat for Estonia (see below), the results presented in this *Survey* can be directly compared with the EC estimates.
7. The methodology used for estimating consolidation requirements in OECD economies (the improvement in the underlying primary balance needed to stabilise debt-to-GDP ratio by 2025) differs from the one described above, so the results are not directly compatible. In any case, European Commission estimates equally show that consolidation needs of Estonia are much smaller than in other EU member countries.
8. The *Sustainability Report* (European Commission, 2009a) makes a general point that in a context of crisis and recovery, the sustainability assessment was undertaken under larger than usual uncertainty.
9. Only two OECD countries, Korea and Mexico, have lower level of social spending as a share of GDP than Estonia. See OECD (2010b).
10. For the details of pension reform in Estonia, see OECD (2010b).
11. The old-age pension replacement rate is an alternative indicator that measures how effectively a pension system provides a retirement income to replace earnings, the main source of income before retirement. The gross replacement rate is defined as gross pension entitlement divided by gross pre-retirement earnings. The net replacement rate adjusts for the effect of personal income taxes and social security contributions paid by workers and pensioners. See OECD (2011a). Pension benefit ratio and replacement rates are closely related and usually show a similar dynamics.
12. Gross replacement rate in the European Commission definition (the average first pension as a share of the economy-wide average wage, which is different from the OECD definition), as reported by the EU member states in the pension questionnaire, is projected to remain broadly stable over 2007-10 at around 30%. This is still below most of other EU countries for which such projections were reported.
13. Conclusions of the European Council (28-29 October 2010).
14. Other are Luxembourg and Sweden.
15. Similar OECD recommendations have also been made for another recent euro area member, namely Slovakia.
16. See (Ljungman, 2008) for an overview of expenditure rules.
17. According to the current law that expires at the end of 2011. A new legislation is expected to come into force in 2012, introducing an operating budget balance rule for local governments, a net debt limit related to individual financial capacity of a local government unit, and the limit for the local governments' consolidated deficit.
18. Throughout the text, indirect taxes, taxes on goods and services and consumption taxes will be used interchangeably.
19. Income tax is flat, but due to the basic exemption, the average tax rate increases slightly with income.
20. The results of the study were not available at the time of drafting the *Survey*.
21. For more information, see OECD (2011b).
22. This conclusion also holds if VRR calculations are adjusted for the sale of new houses. Under the current methodology, purchases of dwellings by households are not included in the calucalations of VRR, as they are classified as gross fixed capital formation in the national accounts, and the methodology assumes that the tax base for VAT is consumption.
23. VAT exemption here means that tax is not charged to the purchaser but input VAT is not deducted.
24. Apart from the services of social character, most financial services are also VAT exempt. Financial services are usually exempt from VAT, in Estonia and elsewhere, mainly because of technical difficulties in determining the VAT tax base. These difficulties are not easy to overcome, and thus it is unclear whether adding financial services to the VAT base would enhance growth. See OECD (2010c).

25. The cross-country differences in the share of taxes in fuel prices also reflect the differences in the underlying price due to factors such as transportation, as well as the presence of other taxes, for example VAT.

26. Most OECD countries tax diesel at lower rates than petrol. Only Switzerland and the United States have a higher tax rate for diesel than petrol, and Australia and the United Kingdom apply the same rate for both fuels.

27. The Estonian government was extremely successful in selling emission quotas in 2010 to Austria, Spain, Luxembourg and the Japanese bank SMBC. Those are however one-off transactions.

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ANNEX 2.A1

*Fiscal consolidation measures adopted during 2008-10**

Reductions in expenditure

Structural reforms

Reform of sickness benefits

Prior to reform, the first day of illness was not covered by the sickness benefit scheme; from the second day of illness, sickness benefits were paid by the Estonian Health Insurance Fund. From 1 July 2009, the period not covered by the sickness benefit scheme was increased to three days, while the obligation for the employer to pay the sickness benefit from the fourth day to the eighth day was introduced. Hence the Health Insurance Fund only assumes the obligation to pay from the ninth day of illness. Additionally, the sickness benefit rate was reduced from 80 to 70% of an employee's wage and the care allowance rate was reduced from 100 to 80%.

Reform of pension provisions

Legislation was amended giving the government the right to approve a lower pension indexation rate if expected real GDP growth in the same year is negative or if the gap between projected revenues and expenditure of state pension insurance funds exceeds 1% of GDP (offsetting payments can be made within five years after the index change). The pension indexation rate for 2009 was thus reduced from 1.14 to 1.05 on 1 April 2009.

Decrease in operating expenditure

State budget expenditures in the second half of 2009 were about 25% lower compared to 2008. The wage bill of the public sector, including public administration, health and education, was reduced via wage cuts and staff reductions, as well as shortening of working time.

Decrease in other spending categories

The share of *defence expenditure* was at 1.5% of GDP in 2004 when Estonia joined the NATO alliance. Subsequently, spending on defence increased to 1.8% of GDP in 2008. This spending category was cut in absolute terms in 2009 but remained stable as a share of GDP.

* This Annex draws on the "State Budget Strategy for 2011-2014" (Ministry of Finance of Estonia, 2010), the response of the Ministry of Finance of Estonia to the OECD fiscal consolidation questionnaire, and the European Commission.

The strategic goal is to increase defence expenditure to 2% of GDP. Expenditure on *road maintenance* was cut by 0.4% of GDP and a*gricultural subsidies* were reduced.

Increases in revenue

Tax reforms

Increases in statutory rates and elimination of reduced rates

- Increase in the standard VAT rate from 18 to 20% from 1 July 2009.
- Increase in the reduced VAT rate from 5 to 9% from 1 January 2009.
- Elimination of the reduced VAT rate on funeral items and services, handling of hazardous waste and tickets for performances and cultural events from 1 January 2009; on diapers and sanitary towels from 1 April 2010.
- Increase in unemployment insurance contributions from 0.9 to 3% of the payroll (from 1 June 2009), and to 4.2% from 1 August 2009.
- A series of excise duty hikes on natural gas, motor fuels, alcohol and tobacco has been implemented over 2009-10. An additional increase in excise on tobacco is planned from 1 January 2011.
- The previously announced decreases in the personal income tax and corporate income tax rates and the increase of basic allowance were suspended from 1 January 2010.

Reduction in tax allowances and benefits (tax expenditures)

- Elimination of the deductibility from income tax of study loan interest payments and trade union entrance and membership fees from 1 January 2009.
- Elimination of the previously announced additional income tax exemption for the first child from 1 January 2009.

Temporary and one-off measures

Diversion of state contributions to the mandatory funded second pension pillar to the general government budget

- Full state contributions to the mandatory funded private pension pillar (4% of payroll) were diverted to the general budget (state pension fund) in the second half of 2009 and in 2010. State contributions have partially resumed in 2011 (2% of payroll will be paid to individual accounts) and are expected to be fully resumed in 2012. The contributions may be increased to 6% of payroll in 2014-17 in order to counterbalance current reductions, but only for those employees who chose to continue their individual payments into the second pillar (2% of the payroll) in 2010-11, or applied for paying 3% instead of 2% starting from 2014. This will amount to diverting part of the contributions from the first to the second pension pillar, as social tax is not expected to rise.

Shortening of working time of public sector employees

Due to lack of information, this is classified as part of the reduction in the public sector wage bill.

Freezing of wages of public officials

- In 2009, the "Temporary Organisation of Payment of Wages Connected to Estonian Average Wages" Act was amended, freezing the wages of officials appointed by the parliament and the president of the Republic. This decision supplements the decision of not calculating the wages connected to average wages on the basis of the average wage indicators. The decision is operational from 1 July 2009 to 31 December 2010.

Extra dividends from state-owned companies

- Extra dividends were requested from several state-owned enterprises, notably from Eesti Energia and Port of Tallinn, in 2009 and 2010. The central bank made a higher profit transfer in 2009.

Sale of land

- Land (mostly forest) was sold in small lots to citizens, in total amount of EEK 306.6 million in 2009 and EEK 414 million in 2010. Further sales are expected in 2011.

Chapter 3

Public sector spending efficiency: Healthcare and local government

The Estonian fiscal position is much better than in many OECD countries, the country stands out for having a rather lean government sector and the authorities are striving for efficient use of existing resources. Both healthcare and local government were particularly hit the by the decrease of resources as a result of the unprecedented GDP fall during the downturn. As a return to high revenue buoyancy will not be immediate, there are challenges for delivering the same with less money but it is also an opportunity to reconsider provision of public services. The healthcare sector is state dominated and offers some scope for efficiency improvements. On the supply side, further streamlining of the existing hospital network, emphasising primary care, and keeping an eye on the standard of quality of care, would be helpful. A number of market signals are already in place on the demand side, such as fees and drug co-payments. Yet these raise issues of accessibility of healthcare, in particular for financially distressed households. A cap on out-of-pocket spending together with active promotion of least expensive drugs use would help to address this issue. Local government seems rather extensive and fragmented for such a small country. Exploiting economies of scale, either by merging or requiring deeper co-operation, should bring gains in terms of public service efficiency. Offering greater scope for tax raising at the local level can incentivise the municipalities to adopt more growth-oriented economic policies.

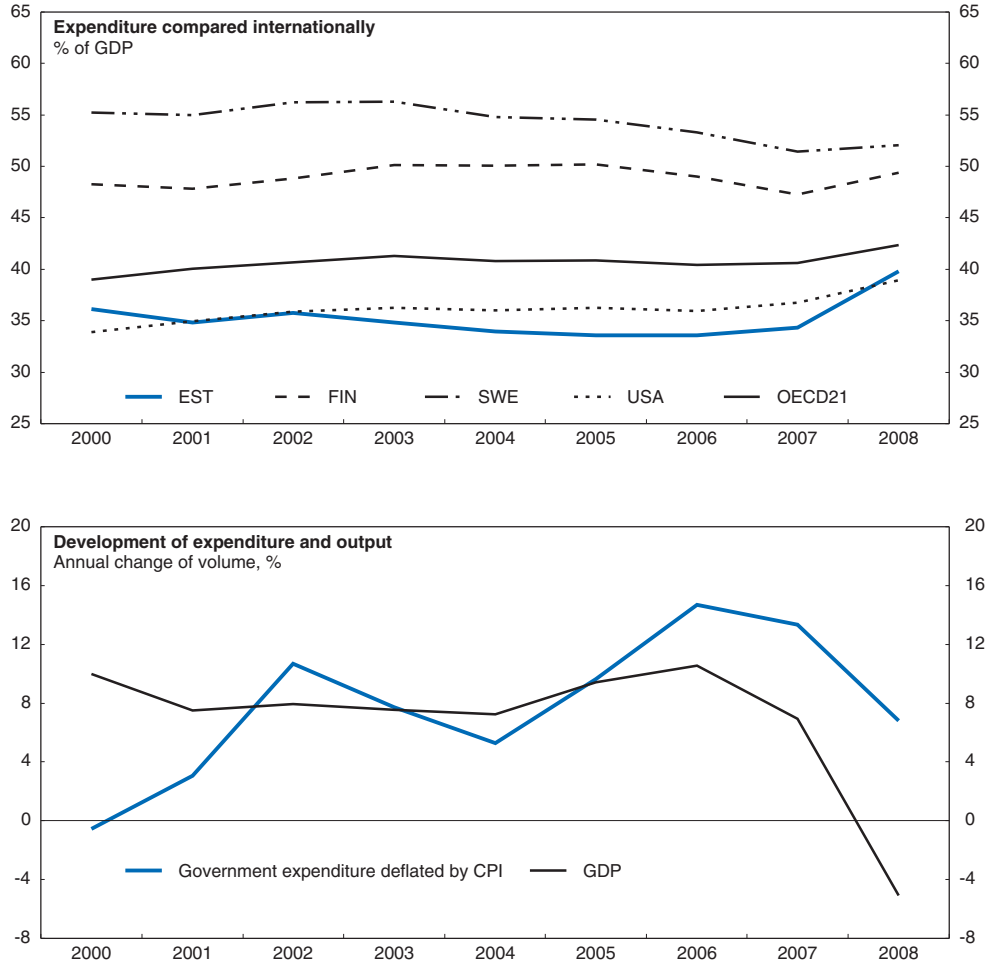
Estonia's current budgetary outlook is better by far than that of most OECD countries. As described earlier (Chapter 2), the authorities have been able to exercise remarkable flexibility during the downturn, cutting expenditures as revenues collapsed. Yet this came at a cost, and the State Budget Strategy for 2011-14 calls for more efficient use of budgetary funds and creation of fiscal space. The authorities wish to remain fiscally prudent and plan to broadly maintain the current moderate level of public spending (Convergence Programme, 2010). The chapter looks at two selected areas: healthcare and local government. Both have experienced a considerable reduction of resources during the downturn. In health care the waiting times have been increased and prices for services of providers cut. Local governments are experiencing decrease of resources both as a result of lower income tax revenues and a decrease in the tax sharing arrangement. Since return to the previously revenue buoyant growth is unlikely for some time, the challenge is to deliver services while improving quality in the years to come.

Measured by general government expenditure as a share of GDP, Estonia stands out as having a lean government which is typified by its distortion free approach to policy making (Figure 3.1). General government expenditure remained more or less stable at some 35% of GDP during the decade prior to the 2008 downturn, about 10 percentage points below the OECD average. Estonian government spending is notably low when compared with other Nordic countries, where it is at some 50% of GDP. However, within OECD area there are marked differences in how much governments spend. While most continental European countries and the Nordics rank above average others such as Korea, New Zealand or United States spend below the average. Due to the sharp GDP fall and increased social spending as a result of the downturn, Estonian government spending reached over 47% of GDP in 2009. It is set to peak in 2010 before starting to decrease slowly. According to the Convergence Programme (2010), the level of general government expenditures is set to decrease again to levels below 40% in the medium-term.

Healthcare is particularly susceptible to spending acceleration

Although looming spending pressures as a result of projected population ageing are not as pronounced as in other countries, they nevertheless lead to more emphasis on the efficient use of available resources. Experience from other OECD economies underscores that health expenditures tend to rise together with increasing incomes and technology developments (Oliveira Martins and de la Maisonneuve, 2006). Technological advances mean on one hand progress in curing illnesses but very often also increase in costs. Each of these trends increases pressure on expenditures and this is true also for Estonia. With total healthcare spending of 6.1% of GDP (2008) Estonia spends well below the OECD average of 9% of GDP. Also, healthcare spending as a share of the government expenditure at 10.8% is low compared to both the EU and OECD average. Yet, countries that spend the most do not necessarily fare best in terms of health status indicators and quality of care as is clear with the high US spending of 16% GDP and only an average life expectancy.

Figure 3.1. **Public expenditure compared internationally**



Source: OECD, *Government Expenditure by Function (COFOG) Database.*

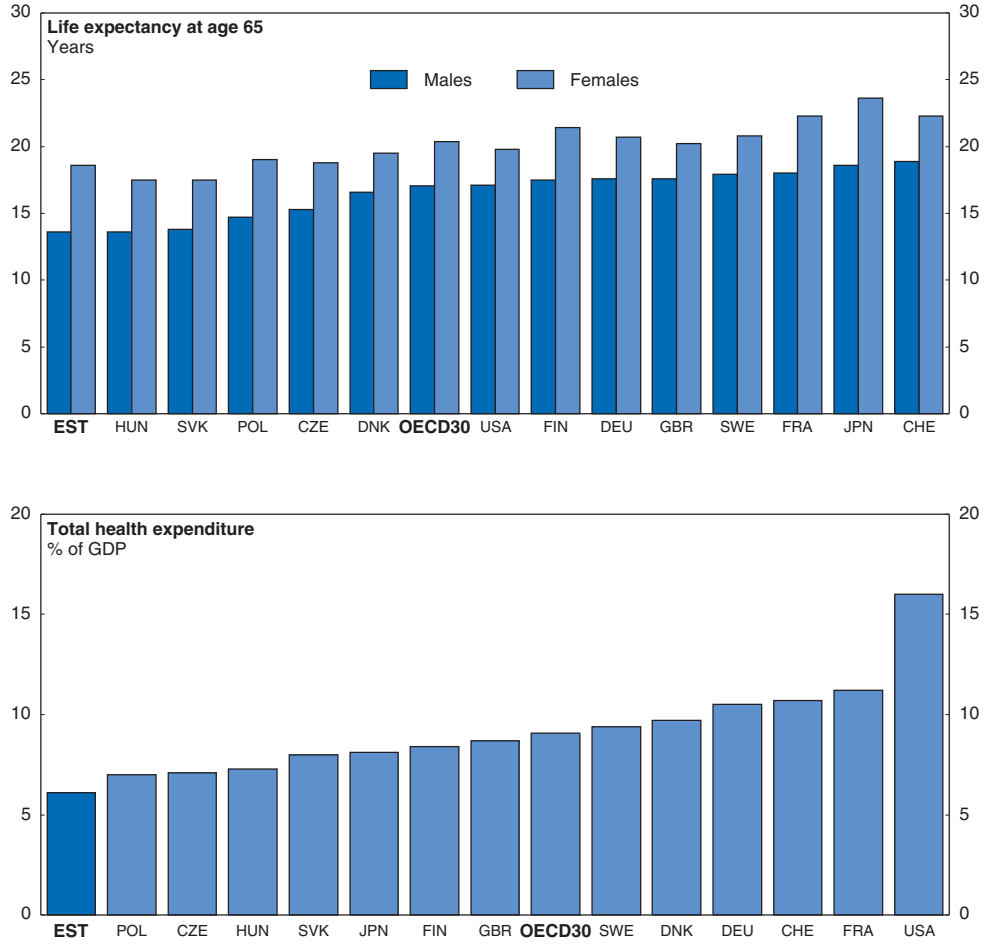
StatLink http://dx.doi.org/10.1787/888932378435

Although the population seems satisfied overall with the existing healthcare system, Estonia does not score well in terms of health status.[1] Life expectancy is still low. It was 74.6 years in 2008 while the figure for OECD average was 79.0 years, and in Finland and Sweden, 79.9 and 81.4 years respectively. The situation is particularly alarming for men at 65, whose life expectancy of 13.6 year is one of the lowest in OECD, and on a par with Hungary. Part of the explanation could be attributed to unhealthy lifestyle of certain parts of the population as Estonia has the highest alcohol consumption among the OECD countries and ranks among the top on smoking and obesity. But as illustrated bellow, socio-economic factors can only partly explain a healthcare system's performance. Indeed, the authorities recognize that low life expectancy is an issue, and the State Budget Strategy for 2011-14 aims at increasing health-adjusted life expectancy by three to four years by 2014.

The scope for efficiency gains exists

Recent OECD work using both panel data regressions and data envelopment analysis shows that there is scope for efficiency improvements in healthcare across most countries. Potential gains in health outcomes by improving efficiency can be significantly higher than

Figure 3.2. **Life expectancy and health expenditure, 2008**



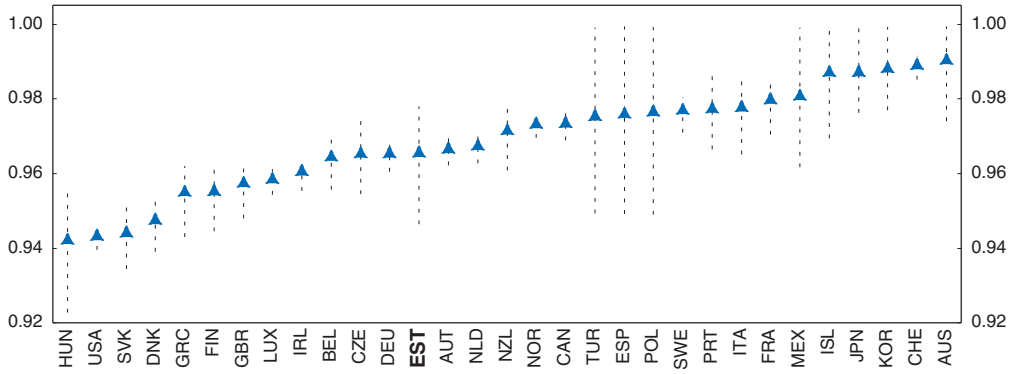
Note: Data refer to 2008 or latest available year.

Source: OECD, *OECD Health Data 2010*, version: October 2010.

StatLink http://dx.doi.org/10.1787/888932378454

just by increasing expenditure. Furthermore, looking at groups of the countries sharing similar institutional characteristics showed that no broad type of health care system is particularly better than others in improving population health status in a cost-effective manner. In other words, efficiency improvements seem to be feasible within all institutional setups of OECD health systems (Joumard *et al.*, 2010a). Such analysis for Estonia indicates that there is scope for efficiency gains (Figure 3.3).[2] Given the low level of spending, healthcare system performance falls slightly below OECD average results on possible improvements. Life expectancy could be increased by 2 years maintaining the same level of spending while moving to a more efficient use of existing resources. Analysis using two inputs: health expenditure and environment – a composite socio-economic indicator that includes GDP per capita, educational attainment and lifestyle factors (see note of Figure 3.3), shows that life expectancy at birth could be increased by 2.5 years and life expectancy at 65 by 1.9 years by moving to a more efficient healthcare system. Both of these indicators are very close to or at average outcomes for OECD countries. However, an analysis focusing on volumes rather than value terms, by substituting the health expenditure by the number of health professionals, shows a potential for significant increases in life expectancy at birth (of

Figure 3.3. **Relative efficiency of the health output of life expectancy, 2007**
Country score relative to most efficient score and 95% confidence intervals



Note: Scores were estimated using Data Envelopment Analysis (DEA) with two inputs (health care spending and a socio-economic/life-style measure) held constant and one output (life-expectancy at birth). Life-style factors were consumption of fruit and vegetables and lagged consumption of alcohol and tobacco. Estimates were corrected for bias and small samples using the bootstrap statistical technique. Scores should be interpreted as broad indicators of scope for efficiency gains and ranking. Methodological details are in Joumard *et al.* (2008), "Health Status Determinants", *OECD Economics Department Working Papers*, No. 627.

Source: OECD Secretariat estimates.

StatLink http://dx.doi.org/10.1787/888932378473

8 years) that clearly exceeds other OECD countries efficiency reserves. Such results are quite common in CEE countries and suggest that there might be many health professionals but they are poorly paid and/or have low incentives for treating patients. As will be shown below, the number of nursing staff and pay levels could be an issue.

A well regulated public system applies numerous market signalling features

Estonia has a mandatory public system of healthcare with almost universal coverage and a single insurer. When reforming the system from Soviet-style legacy in the 1990's, a multi-insurer model was ruled out on the grounds that given Estonia's small population, effective competition between insurers would be impossible. Indeed, in comparison with countries like Czech Republic or Slovakia that introduced multi-insurer models, Estonia fares well in terms of lower administrative costs.[3] General health insurance covers about 95% of the population, 45% of whom are non-contributors (*i.e.* not working). The state makes contributions on behalf of some of them, notably the unemployed and parents on parental leave. In terms of scope, the insurance package has evolved somewhat over the time but is generally broad although it excludes dental care for adults and long-term care. Also, an elaborate system of user charges and drug co-payments is in place.

Public health spending funded by a social tax on labour and mainly via a health insurance fund

The majority of public health spending is financed though the health insurance fund (EHIF), with some particular services funded directly by different levels of government. The EHIF is funded by an earmarked share of a social tax levied on labour income. It is obliged to have a balanced budget and to create reserves to account for unexpected developments in revenues, but is implicitly backed by the state. Employees and self-employed contribute 13% of gross wages, which is part of a 33% social tax and collected by the tax authority. A cap on income subject to contributions for the self-employed is in place, although it is at

Box 3.1. **Main actors of healthcare system**

Government is the principal policy maker and regulator of the system. Its main goals and plans are outlined in the National Health Plan (2008), which covers the period to 2020 and targets increasing life-expectancy and general health conditions of the population. The government approves a basic benefits package and price list, usually once a year following a proposal of the Ministry of Social Affairs, on the basis of medical efficacy, cost-effectiveness, compliance with national health policy and availability of financial resources. The Ministry also plays a key role for drugs price setting. There are a number of state agencies such as the Health Board, Pharmaceutical committee, National Institute for Health Development and State Agency of Medicines that carry out various supporting tasks for the Ministry.

Estonian health insurance fund (EHIF) is the administrator of the system. It is a single insurer and main contractor of care. It carries out monitoring of providers, supplies the government with analysis for decisions about reimbursements and content of the coverage package. The fund is financed from a social tax levied on wages but is implicitly backed by the state, an arrangement that in theory gives an incentive to exceed the budget but so far no bail out has been needed. The EHIF operates through four regional branches. It is also responsible for part of the sickness insurance (the other part being a responsibility of employers) and the distribution of maternity benefits. The fund is governed by a 15 member supervisory board of representatives of the government and patients' organisations, chaired by the Minister of Social Affairs. In 2009 the EHIF's expenditure on health services accounted for 5.4% of GDP.

Local governments own hospitals and nursing care institutions, largely via foundations. They are primarily responsible for the provision of long-term care and cover non-emergency care for the uninsured.

Hospitals are legal entities in the form of limited companies or foundations, owned by either the state or local governments. The 2003 Hospital Master plan envisioned 19 active care hospitals throughout the country: 12 general and local hospitals (one in each county expect for Tartu, Parnu and Harju, where central or regional hospitals are located), 4 central hospitals and 3 regional hospitals. The EHIF contracts health care with these hospitals in five year plans. Furthermore, there some 30 nursing care institutions and 7 privately owned hospitals, focusing largely on specialised care.

General practitioners (family doctors) operate typically in individual practices and serve a partial gate-keeping role. Family doctors are obliged to have no less than 1 200 and no more than 2 000 patients except for some rural areas and some islands. They are paid by a combination of a basic monthly allowance, a monthly age-adjusted capitation-fee per patient and fee for service. A recently introduced voluntary quality bonus focusing on disease and chronic conditions prevention has been taken up by a large share of GPs.

With 0.65 **pharmacists** per 1 000 population Estonia has the highest number of pharmacists in the Central European region and ranks on a par with Austria and Denmark. There are over 500 pharmacies and opening of a new pharmacy is regulated based on geographical location and population size since 2006. A large share of the market is concentrated in five pharmacy chains. Drug wholesalers cannot operate a pharmacy directly, but only through a subsidiary.

Source: WHO (2009, 2008), Habicht (2010).

relatively high level (15 times the minimum wage) and the introduction of a cap for employees has been under consideration (see Chapter 2). On top of this, about 10% of health financing passes through the state and municipal coffers. The Ministry of Social Affairs funds emergency care, ambulance services and public health programmes. Local municipalities cover non-emergency care for the uninsured. Capital costs were previously allocated directly from the state budget but more recently these are increasingly being funded via the EU structural funds.

Family doctors provide general primary care and serve a partial gate-keeping role. Consultations are free of charge during office hours and there is a privately paid fee for home visits. Nurses can also carry out home visits and consultations on an individual basis. Furthermore, there is a 24 hour primary care call centre that has proven popular ever since its introduction in 2005. Visits to specialists without a referral are possible but are not covered by the insurance. There are exceptions for patients with chronic conditions and for some specific professions such as ophthalmologists, dermatologists, dentists and gynaecologists. Family doctors have a fixed range for the number of patients, with a few exceptions for remote rural areas. There were 3.3 physicians and 0.86 GPs per 1 000 inhabitants in 2009, both close to the OECD average.

There has been a significant reduction in the hospital network already, but scope for more rationalisation remains. Targeted streamlining of the hospital network has been in place since 2000. An original government plan was for 19 hospitals with 2.2 beds per 1 000 inhabitants by 2015, but this was later on increased somewhat. Currently, there are 3.8 beds per 1 000 inhabitants and the number of county hospitals is still slightly above the targeted figure. A National Audit Office report highlights that the updated hospital streamlining plan does not reflect well changes in the society that have happened since the original plan was created. Rural patients increasingly use regional or central hospitals as opposed to their local facilities. The county hospitals seem in particular affected by this change. The hospital network offers scope for further streamlining and the authorities are currently working on reviewing it. In particular, some general and local county hospitals can be turned into health centers with emphasis on provision of outpatient and day care as well as nursing care services.

Meanwhile, falling demand in local hospitals raises issues of ensuring a consistent level of quality of care. The EHIF carries out internally some benchmarking of providers to address issues of quality, mainly by comparing the providers to national averages on indicators such as length of stay in hospitals or case-mixed indices and more recently also in relation to other providers. Also clinical audits and development of clinical guidelines are underway. Given the small size of the Estonian healthcare market, international co-operation might also be an opportunity to improve the efficiency of the system and ensure consistent levels of provided care. Some of this is already underway, as the EHIF allows for some highly specialised treatments to be carried out abroad. In 2006, there were some 6 500 such cases and in 2009 this has increased to more than 22 000 cases. These were mainly treatments of highly specialised nature for which the service or its alternative doesn't exist in the country.

Diagnosis-related group (DRG) based contracts are used widely for paying healthcare providers. These have been gradually phased in since 2001 and the proportion of DRG payment for inpatient and day-care surgical cases has been raised to 70% recently, while 30% remains reimbursed based on services. The DRG payments were originally introduced

following an unexpected dip in revenues in 1999, as the Estonian economy felt the impact of the Russian crisis, as well as in an effort to deal with continuous rise in fee-for-service costs that was out of line with price developments at the time. The EHIF contracts with licensed hospitals on a medium-term basis (three and five year contracts) which embody a price list set by the authorities and include indicators such as maximum waiting times and quality of care. WHO points out that although the provider pay system has been reformed and improved substantially, some perverse incentives remain. For example, case-based purchase of inpatient care doesn't encourage continuity of care among providers or levels of care. Moreover, care may not always be delivered at the appropriate level. About a half of the EHIF's budget is spent on specialist care, but only 8% on primary care. According to WHO there is also an issue of avoidable hospitalisation – *i.e.* cases that could have been avoided through better quality of primary outpatient care – which points to a need for improvements in the family doctors' services. The EHIF's own analysis illustrates the scope for improvement in the GP network. When looking at the relationship between hospital utilisation and GP visits, it found that the three counties with the highest hospitalisation rates have the lowest utilisation of GPs (WHO, 2010). The effectiveness of gate-keeping often depends on the ability of the primary care doctor to act as a good agent managing and co-ordinating the follow up of patient care, as well as on information available on the quality and prices of services supplied by the providers of secondary care.

Rising out-of-pocket payments bring issues of accessibility

Out-of-pocket payments (OOP) were introduced in 1995 and have evolved significantly since. While in the early 2000s there were co-payments for most doctors' visits, today regular GP consultations carry no OOP. Also, annual spending limits which qualify for additional reimbursement, have been introduced even though these stop at a relatively high threshold of EUR 1 278. Furthermore, the group of the population who are exempt from a number of OOPs has been reduced over time. Currently, children and pregnant women are exempt. Retirees, the disabled and children under 16 are not, although they were previously also part of this group and still get higher re-imbursement rates for pharmaceuticals. A 15% co-insurance for inpatient nursing care has been introduced in 2010.

The importance of out-of-pocket payments as a source of financing has increased considerably. At the end of the 1990's they represented some 14% of total healthcare financing. By 2006, this has peaked at 25%, and it declined only slightly below 20% in 2008, which is the OECD average. This increase is also visible when looking at households' expenditure. In 2000, the share of OOPs in total household expenditure was on average just under 3%; then in 2007 it reached 5%, while the OECD average was 3.6%. OOPs are generally considered as a useful tool for curbing excessive demand and a large number of OECD countries have introduced them in some form. However, they raise issues of accessibility of care, which can have an impact on the general health status of the population. Should they result in postponing adequate and timely care in the early stages of an illness, which tends to be cheaper, such postponement can create additional costs for more sophisticated treatments later on. A large majority of OECD countries (with the exception of Mexico and Turkey) use policies to protect some population groups or the entire population from excessive out-of-pocket payments. Twenty-four countries exempt patients with specific medical conditions or disability, thirteen countries exempt seniors and the same number exempt pregnant women. Another widely used option is setting up an upper limit in relation to household income, which is applied by seventeen OECD countries (Paris *et al.*, 2010).

Box 3.2. **Out-of-pocket payments**

Outpatient care. The biggest item of out-of-pocket payments is adult dental care, which is not covered by the insurance. Children and adolescents up to 18 years old are covered and there is a limited cash benefit for pregnant women and pensioners. When seeing a specialist contracted by the EHIF, a co-payment of up to EUR 3.20 is levied. Specialists not contracted by the fund can charge "reasonable" costs. Moreover, a specialist visit without a GP's referral is not covered by insurance. A GP's home visit is charged EUR 3.20, consultation within office hours is not charged. Emergency care is free of charge.

Inpatient care. A co-payment of up to EUR 1.60 per day is levied for a hospital stay (maximum 10 days per illness episode). Pregnant women, children and patients at intensive care units are exempt. Co-payments are charged for above-standard accommodation and for specific services such as inpatient rehabilitation of non-acute services. A co-insurance of 15% for nursing care was introduced in 2010.

Pharmaceuticals. Insurance covers fully only drugs used in inpatient care. For the rest there is a co-payment of EUR 3.20 per prescription and co-insurance of at least 50% of the price, and the EHIF doesn't reimburse more than EUR 12 per prescription. For chronic diseases, there is a co-payment of EUR 1.30 and co-insurance of 0-25%. Lower co-insurance payments apply for children and pensioners. Exceeding annual spending ceilings qualifies patients for additional reimbursements, but the patient has to apply. For expenditure between EUR 383-639, 50% reimbursement is available, for EUR 639-1 278, 75% is covered. Above this threshold there is no additional reimbursement available.

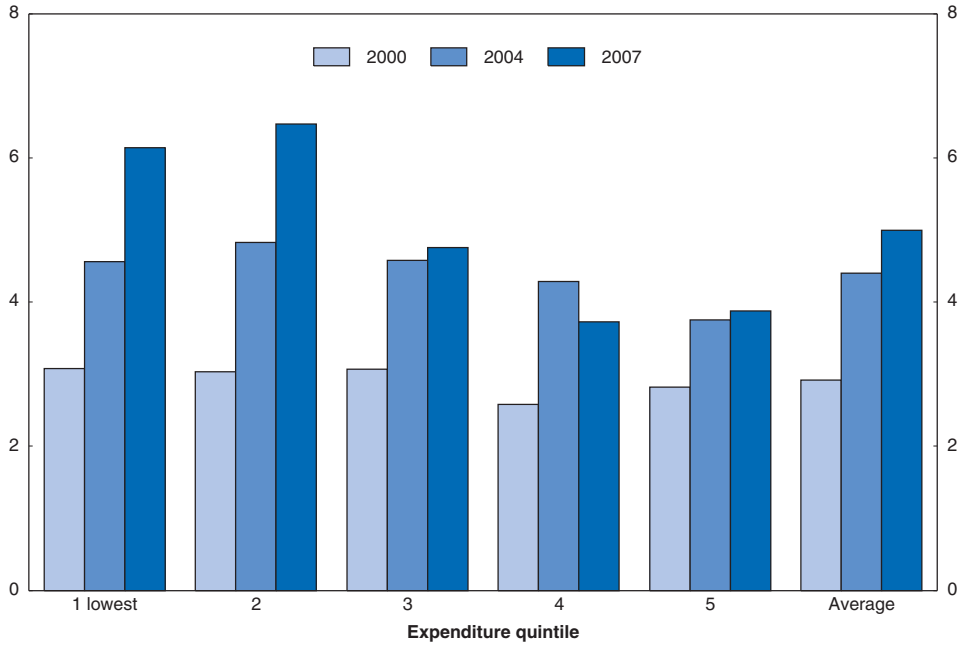
Source: Vork *et al.*, 2010.

In an analysis of OOPs impact on Estonian households, Võrk finds that over time they have become regressive and as a result certain groups have been pushed into poverty (Võrk *et al.*, 2009). Pensioners are most affected by the increases. The proportion of households with OOPs above 40% of capacity to pay has increased steadily, and in 2007 reached 3.3%. This share of people paying so-called catastrophic expenditures for health is comparable to Korea and Mexico, even though this has to be taken with a certain caution as this data are based on a self reported questionnaire and a number of countries didn't report such national estimate (Paris *et al.*, 2010). Households can apply for social assistance at their local municipality. Municipalities are obliged to fund health care for the uninsured population and in fact some health care costs for the insured are also already being reimbursed. The city of Tallinn had a specific list of health expenditures eligible for compensations prior to the downturn while other municipalities deal with compensations for medical expenses on a case-by-case basis. However, availability of additional reimbursements varies across the country depending on actual financial situation of each municipality and as illustrated below, municipal budgets have come under strain during the downturn. Moreover, applying for additional social benefits might pose a social stigma. Introduction of a means tested cap on out-of-pocket payments should improve the situation of low income households and protect the chronically ill. Alternatively, this issue can be addressed under existing social benefits such as subsistence minimum.

Drug expenditures represent some 10% of the EHIF budget and are households' largest share of out-of-pocket payments. Pharmaceutical costs are some 20% of total healthcare spending, somewhat above the OECD average of 17%. Various reimbursement categories exist, and the category can depend on whether a drug is prescribed by a general practitioner

Figure 3.4. **Out of pocket health payments by expenditure distribution**

% of total household spending



Note: Expenditure is consumption expenditure and excludes donations, monetary gifts, etc. The graph shows out of pocket payments as a percentage of household spending for each spending quintile.

Source: Statistics Estonia, *Estonian Household Budget Survey* microdata and calculations by Andres Võrk, University of Tartu.

StatLink http://dx.doi.org/10.1787/888932378492

or a specialist. The effective co-payment (total co-payment divided by total drug spend by insurance) for reimbursed drugs stands at some 37%, which is comparable to Finland but high compared to other European countries. Co-payments for pharmaceuticals were introduced as early as 1993 and over the period of 1997-2006 the total expenditure on pharmaceuticals per capita has more than tripled and outpaced growth in its regional peers such as Finland and Sweden but also in countries like the Czech Republic (Kanovos *et al.*, 2009).

Several studies, including EHIF's own internal analysis, point to low use of cost efficient generic drugs in Estonia (WHO, 2010). Prescription in International Non-proprietary Name is compulsory for physicians unless there is a specific medical reason for a brand name. The pharmacies, until recently, were free to direct customers to specific products. Since patients pay the difference between the reimbursed and actual price, the EHIF wasn't really affected by such behaviour. However, pharmacies' exploitation of their information advantage over customers clearly constitutes a market failure, resulting in higher private spending on healthcare. In an attempt to tackle the issue, the government introduced a decree in March 2010, obliging the pharmacies to offer the least expensive drug available. Moreover, a public awareness campaign is currently under way ("Choose optimally priced medicine at the pharmacy") to improve awareness of the price choice patients are making when buying drugs. Yet anecdotal evidence shows that the cheapest reference drug is often not available in a pharmacy. The ownership structures of pharmacies' might be partly responsible. Although wholesalers are not allowed to own pharmacies directly, they can do so via subsidiaries. Thus some 80% of pharmacies belong to five of pharmacy chains and buy their supplies from two major wholesalers in the

country (Koppel *et al.*, 2008). Also, existing regulations on opening of new pharmacies could also play role.[5] The pharmaceutical market is currently under investigation by the Competition Authority.

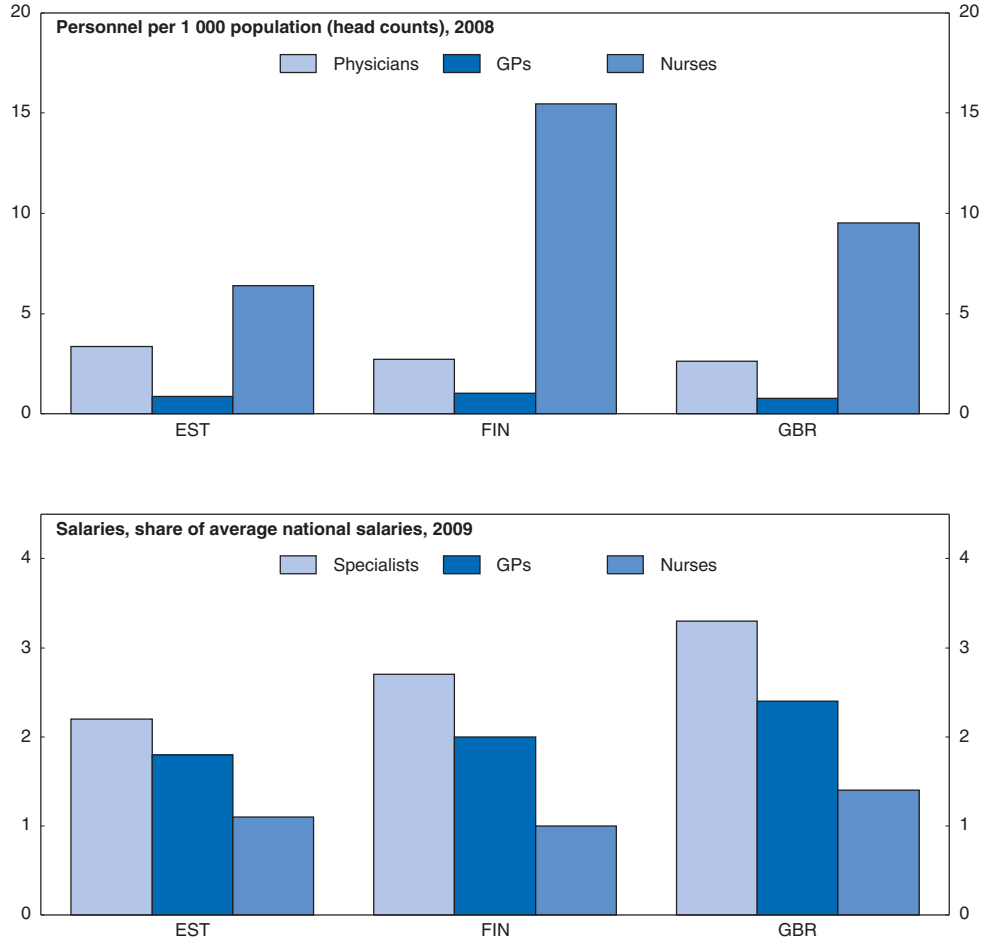
A distinctive feature of the Estonian health care system is digitalisation. Implementing ICT tools in healthcare systems across OECD countries can improve allocative efficiency by decreasing the use of health services – particularly expensive hospital care – through better co-ordination between primary and secondary care. There is also scope for improvements in technical efficiency such as preventing duplication of laboratory and diagnostic tests and preventing medical errors that can be extremely costly (Paris *et al.*, 2010). With the Estonian central authorities eager for IT-savvy solutions, a project for introducing a national database of medical documents has been on the agenda since 2003 and with some delay it finally got under way in 2008 building three databases (electronic health records, digital registrations, and digital imaging databases). The take-up rate among providers has been high since the systems are mandatory. Yet, the active use rate is somewhat more modest as it stood at some 30% and over 13 000 individuals accessed the patients' portal in 2009. The latest stage of this e-health approach is an electronic e-Prescription system launched in 2010, where prescribed drugs are stored in a national database that is accessed both by doctors and pharmacies for dispensing the drugs. Although the system suffered some teething problems at the beginning of the year and had to be temporarily suspended, it should significantly improve information gathering on drugs consumption and prescription. In this regard, it can significantly help to monitor prescribing patterns of doctors and dispensing by individual pharmacies. These should be systematically analysed to enforce wider use of the least expensive drugs.

Low pay and working conditions in the health care sector

The authorities see shortage of labour in healthcare as one of the main challenges. While the number of practicing physicians in Estonia (3.4 per 1 000 inhabitants) is just above the OECD average, there are only 6.4 nurses per 1 000 inhabitants compared to the OECD average of 9 in 2008. This can be party explained by remuneration. Doctors earn about double the national average wage, while nursing staff earn only slightly above the average (Figure 3.5). The growth of the remuneration in the health care sector has been somewhat faster than the average in the economy in 2002-08. However, prior to the downturn there have been tensions over pay and it is likely that wage pressures will return with improving economic outlook. Currently, an agreement on minimum wages of nursing staff is in place. Remuneration in the medical sector is linked to the budget constraints of the health insurance fund, which saw an overall 2-4% decline in prices of health care services for 2011. To some extent Estonia suffers from the close proximity of the Finnish market, which offers better remuneration and poses relatively low language barriers.[6] Attractiveness of better pay abroad is part of the problem, but it doesn't seem to be the only explanation. It is estimated that only some 4% of doctors and 2% of Estonian nurses work abroad, not very high ratios in international comparison. Domestic opportunities for better paid jobs elsewhere in the healthcare sector play a role. Moreover, working conditions also matter and the authorities point out difficulties in attracting adequate staff in particular to rural areas.

The authorities are targeting an increase in medical staff and over the next decade plan for health personnel to stabilize at 3 doctors and 8 nurses per 1 000 inhabitants. Supply is to be boosted thru more state-commissioned study places in medical programmes at the University of Tartu, both for physicians and nursing staff. Other contributing factor

Figure 3.5. **Staff and salaries**



Note: Personnel numbers usually refer to practising personnel, *i.e.* those who provide services directly to patients. Number of nurses in Finland refers to 2007 and includes nurses active in health care. Personnel salaries refer to all full-time salaried personnel and nurses are hospital nurses. Salaries in the UK are for England only and refer to 2007. Salaries for UK GPs refer to full-time and part-time. Refer to Source for further details.

Source: OECD, *OECD Health Data 2010*, October 2010.

StatLink http://dx.doi.org/10.1787/888932378511

to the low number of nursing staff could be demand driven. There is a prevalence of a doctor-centred care, where patients seek doctor consultations and nurses' role has been so far rather limited, while some of the medical tasks could be carried out by well qualified nursing staff thus making the system more cost efficient. The authorities are pursuing possibilities to facilitate such shift in care. As mentioned above, the nurses can conduct home visits and consultations already. Furthermore, there is a plan to allow them to prescribe a limited number of drugs.

Prevention and health promotion can also to some extent contain demand for future health spending and improve health status of population. OECD countries spend about 5% of health care expenditures on government programs for health promotion and disease prevention (OECD, 2010b). Estonia spent some 3% of total health care expenditure on prevention in 2007 and during the downturn this funding has been cut to 2.6% in 2009. Main risk factors leading to ill health of the working age population are related to tobacco

use, alcohol consumption, low levels of physical activity and unhealthy nutrition (Habicht and Ginnecken, 2010). Thus campaigns promoting healthier lifestyle addressing these issues could bring potential future savings, although the evidence on this has been so far somewhat limited (OECD, 2010c). Most health promotion and prevention funding goes via the Ministry of Social Affairs, but other bodies such as Ministry of Justice and local municipalities also fund certain health prevention and promotion activities.

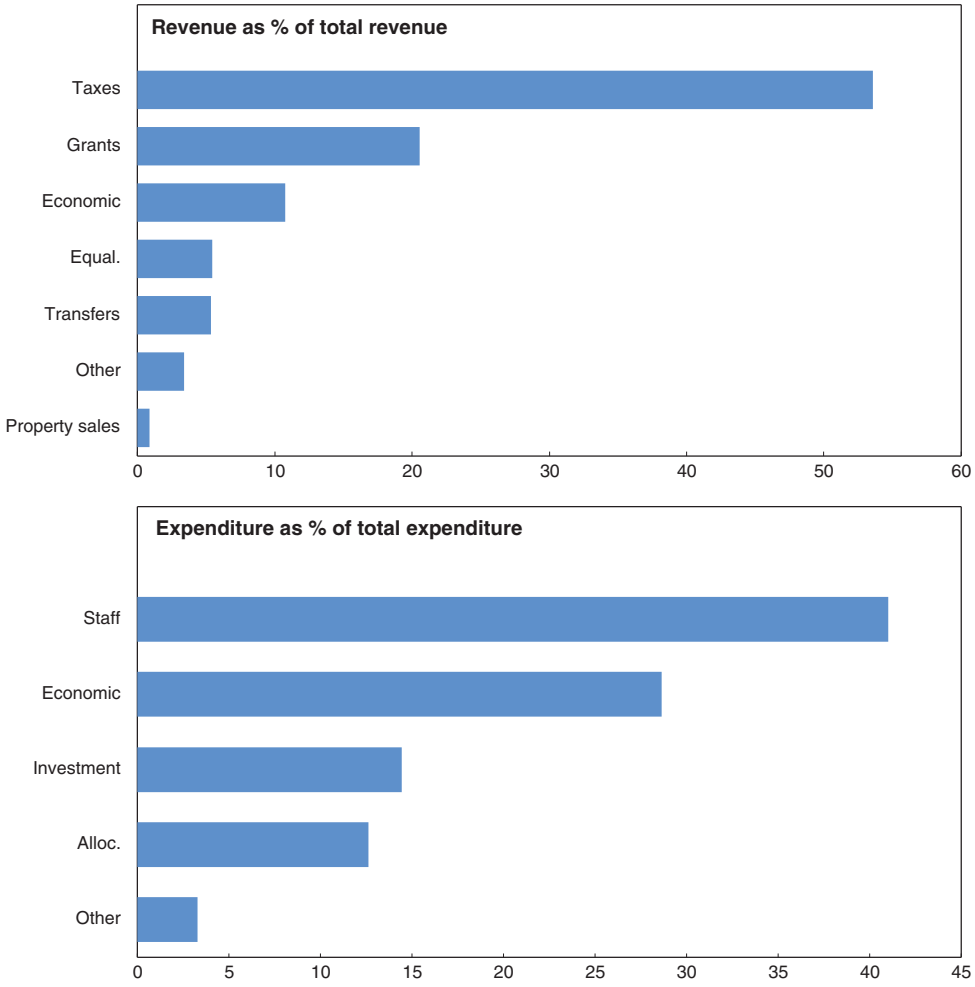
Fragmented local government in need of reform

With over 200 municipalities and 15 counties, Estonia has an extensive network of local government and administration, considering its population size of only 1.3 million. There are 226 elected local governments – 33 towns and 193 rural municipalities. Half of them have a population of under 2 000 inhabitants and two-thirds under 3 000. Local government has experienced something of a renaissance over the past decade as the central government has devolved a number of duties and responsibilities. Currently, about one quarter of general government spending passes via local governments, about 10% of GDP, and they carry out some 25% of public investment. The share of sub-central expenditure in total government expenditure varies widely across OECD countries. In Canada, sub-central governments account for over 60% of the total expenditure, in Greece it is only about 5%. Between 1995 and 2005, this share has increased from 31 to 33% on average in the OECD, with the majority of the countries decentralising (Blöchliger and Petzold, 2009). Local governments in Estonia account for about a half of the general government debt and deficit, even though with debt at 4% of GDP, this is small. Local municipalities run no less than 380 companies and foundations, whose revenues amounted to 7.3 billion EEK, 3.3% of GDP in 2009.

The recession has increased local government deficits and debts across most of the OECD due to a "scissors" effect, which results from falling tax revenues and increasing demand for welfare services. During the downturn, Estonian local governments experienced a decrease of resources both as a result of lower income tax revenues and because the sharing arrangements for such revenues was altered. In 2009, local governments ran a deficit of 0.4% of GDP and in the medium term are expected to have a slightly negative balance of 0.2% GDP. Although local governments are constitutionally independent, in the current framework they have only limited revenue raising possibilities and are financially largely dependent on the central government. Municipalities are principally responsible for provision of public services and infrastructure, primary and secondary education, social care and welfare services and local public transport. Furthermore, they maintain pre-school care and numerous facilities for leisure such as libraries, sport grounds, museums but also long term care facilities for the elderly. In a number of these areas they act mainly as paymasters, in that they in effect disburse central government funds.

In addition to the municipalities, there are 15 county offices run by representatives of the central government, serving primarily administrative and co-ordination purposes. A county governor is appointed for a five year term and is agreed upon with the local governments. He is in charge of co-ordination of various state agencies within the county (such as public unemployment offices), economic and spatial development of the county and oversight of the local governments. Various central government institutions divide the country into various administrative units that do not necessarily correspond to the counties. For example, the health insurance fund has four regional branches that manage and supervise care across the country, and the Ministry of Justice also applies four administrative areas for its purposes.

Figure 3.6. **Composition of local government revenue and expenditure, 2009**



Note:
Revenue:
Grants Grants from State Budget
Economic Income from economic activities and property
Equal. Equalisation fund
Transfers Transfers from foundations and NGOs.
Expenditure:
Staff Wages with taxes
Alloc. Transfers to other entities
Economic Operating expenses excluding wages.
Source: Ministry of Finance.

StatLink http://dx.doi.org/10.1787/888932378530

A local government unit is headed by a municipal council that has a minimum of seven and up to sixty-three members depending on the population size. The council appoints a mayor and executive. Until 2005 there was a three year election cycle, but currently local government elections take place every four years. Representatives of the municipalities play a specific role in national politics. If the parliament doesn't succeed in electing the president, the head of state, municipalities step in. This arrangement gives them political clout on the national level, and especially as parliament has not succeeded in electing the president directly for some time now.

Limited revenue raising opportunities

As noted above, local government finances are to a large degree dependent on the central government budget. Revenues from taxes represent about a half of their budgets. While this is also true on average in OECD countries, for individual countries this ranges from 90% in Iceland to 13% in the Netherlands. Other revenue sources of Estonian municipalities come from economic activities and the central government via equalisation fund or grants. The core of the local government financing is based on sharing of personal income tax (11.4 of 21 percentage points goes to municipalities). However, since tax deductions are taken into account at the central government level, the local governments receive about 80% of personal income tax revenue. They also receive revenues from a modest land tax, where they have a certain degree of freedom to impose the rate within a range given by the central authorities (1 to 2.5%) and to waive the tax for pensioners and land under dwellings. However, the land evaluation hasn't been updated since 2001. Revenues from the land tax vary across the individual municipalities but overall make up under 4% of total municipal revenues. In principle, there are other local taxes but these are not much used. Municipalities can impose the following taxes (number in a bracket indicates how many of them actually do so): sales tax (3), boat tax (1), advertisement tax (47), road and street closure tax (15), motor vehicle tax (1), animal tax (1), parking charge (9), entertainment tax (0). In case of the sales tax that has been recently imposed also by the capital Tallinn during the downturn to compensate for the drop in revenues there is an upper limit set by the central authorities, as it cannot exceed 1% of the value of the goods and services. Moreover, as of 2012 this local tax will be abolished altogether. Collection of local taxes has to be either agreed upon with the central tax authority or done by the municipalities themselves, which can impose another effective constraint. Fees and profits from property sales or natural resources also represent a source of income for municipalities and these are significant mostly in oil-shale mining areas.

Indeed, across the OECD income tax followed by property taxes and consumption taxes are most used as sources for sub-central governments, as they make up around 95% of their tax revenue. In most English-speaking countries property taxes account for most of the local taxes, while in Scandinavian countries the personal income tax tends to be almost the sole tax source for municipalities. For the OECD area as a whole, the share of indirect taxes for local government financing has increased with most of this coming as a result of tax sharing arrangements where the sub-central government units have only a little taxing power. Resource allocation tends to be improved when local government spending is covered by own tax revenue. Such an arrangement makes local governments more responsive to citizens' preferences. It improves budget management as citizens become more aware of direct costs of publicly funded services and those benefiting from the services decide on the taxation levels and pay the bill. It also incentivises the local governments to think about growth-oriented economic and fiscal policies, since they can fully and directly reap benefits of their actions.

Transfers from the state budget come in two basic forms, conditional block grants and unconditional equalisation funds. Block grants are allocated for specific functions. Allocations for primary and secondary education represent the largest item and they cover teachers' salaries and capital grants for renovation of schools. As in other OECD countries, there is an equalisation mechanism for the transfers from the state budget. This is applied if expenditures exceed revenues and covers 90% of the missing resources gap (see Box 3.3). Currently some 200 municipalities are said to receive such equalisation grants. The

Box 3.3. **Equalisation mechanism**

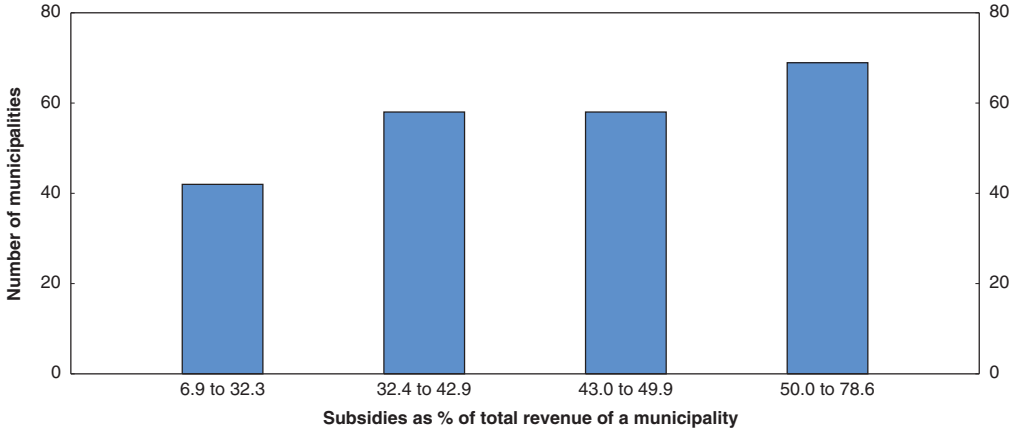
The equalisation formula currently covers 90% of the difference between normative revenue and expenditure. Normative revenue level is calculated as: *i*) personal income tax receipts for last three years multiplied by an income tax growth rate coefficient; *ii*) sum of land tax at a rate of 1.25%; and *iii*) charges for use of natural resources in last three years. Normative expenditures are calculated on a basis of population structure (children between 0-6 and 7-18 years old, numbers in the workforce, numbers of people 65 years and older), length of road infrastructure and the number of people in palliative care. A gap between thus defined revenues and expenditures is covered by 90% from the state budget's equalisation fund.

Most municipalities receive transfers from the equalisation fund. Only the capital Tallinn and some municipalities around it (Harju region) and with Ida-Viru region, where incomes from oil-shale mining are substantial, have the normative revenues higher than expenditures. These are excluded from the calculations. The overall amount available for the equalisation fund is negotiated yearly between the government and representatives of the municipalities. It accounted for 6% of local government revenue in 2009. The equalisation fund varies depending on the position of the central budget.

Source: Friedrich *et al.* (2009); Kriz (2009).

decision on the amount of money available for the equalisation fund is negotiated annually between the central and local government representatives, and it is linked to the overall situation of the central government budget. In the past, both the equalisation coefficient and the personal income tax sharing arrangement have changed; most recently in 2009 when the portion of the personal income tax revenue allocated to the municipal budgets was reduced by 5%. Such changes in financing arrangements can at times make long-term financial planning at the local level difficult. Furthermore, the current mechanism does not encourage municipalities to cultivate their own revenues by encouraging local economic development.

Figure 3.7. **Distribution of subsidies in local government revenue, 2008**



Source: Ministry of Finance; Statistics Estonia.

StatLink http://dx.doi.org/10.1787/888932378549

Even during the boom years, municipalities were mostly running modest deficits. Moreover, since 2005 their debt has almost doubled, although in international comparison, it is still very small in terms of GDP, at 4% while in both Finland and Sweden the figure

stands around 6% of GDP, close to the average for EU16. Some have argued that the numerous responsibilities passed onto the local level have not been matched by adequate resources (Friedrich *et al*.; Jauhiainen, 2008). A recent Constitutional court ruling on the need to better specify earmarked allocations for fulfilling the state delegated tasks from other transfers highlights the ongoing tensions between the central government financing and local municipalities' budgets. This decision led to the establishment of a ministerial committee that identified only a small number of tasks that are not fully covered by the transfers, and these are to be covered in the 2011 budget. In any case, there is a formal consultation process in place for the allocation of new competencies, as according to the law they have to be agreed upon with the municipalities.

Tight budgets and borrowing restrictions

There are explicit borrowing constraints for local governments. Municipalities can take out loans, leases or issue debt securities and obligations, but only within a limit and for the purposes of an investment specified in their development plan. Restrictions apply on both the total amount of such debt and its interest payments. The total amount of debt cannot exceed 60% of the planned annual budget revenue (not including the earmarked grants from the central government budget). At the same time, interest payments cannot exceed at any given year 20% of revenues (less the pre-specified state transfers). Moreover, only budgetary revenues can be used as debt collateral, not real estate or other assets. Ministry of Finance has to be notified of the situation in each municipality and if these rules are broken it can suspend the transfer of funds to a municipality until the situation is remedied.

In response to the recent downturn and euro entry, lending possibilities have been temporarily tightened further. Between 2009 and 2011, borrowing can be used only for covering financing gaps for the EU's structural funds and other international assistance financing. Any such action has to be approved by the Ministry of Finance and, if not adhered to, can result in a suspension of transfers. During 2009 over half of municipalities asked for permission to take out a loan in order to fulfil financial obligation related to absorption of structural funds. However, this general rule will be altered as of 2012 to allow for a more differentiated approach. An amendment passed this year will allow for an individual debt limit for each local government, in the range of 60-100% of its revenue, set by the Ministry of Finance and this should also include municipal companies. Moreover, local governments will be obliged to prepare four year budgetary strategies. As mentioned above, local municipalities run a large number of companies and foundations and these are sometimes used as vehicles to get around the borrowing restrictions. While foundations are most active in the healthcare sector, the companies provide public utility services. The National Audit Office pointed out recently that a financing scheme whereby a loan is taken by a municipal company for the purpose of preventing an increase of the local authority's debt burden is fairly widespread. The repayments for such loans are later on reallocated from the municipality's budget (NAO, 2010).

Since municipalities are responsible for the same set of services regardless of their size, there is a strong concern both at the central and local level about adequate capacity to ensure quality when delivering the public services, in particular for the smaller municipalities. A number of OECD countries face similar issues of local government management, and municipal consolidation is often at the heart of the debate. Implementing such a reform is not easy, due to both often strong local resistance in the name of local identity as well as technical difficulties in determining the "optimal" size of new units. Moreover, even if

mergers in theory lead to economies of scale, the evidence of efficiency gains can be mixed and often it is the quality of service that is identified as the biggest gain.

Previous reform efforts unsuccessful

The central government has attempted a number of times to reform the existing system in order to address the issue of fragmentation and the small size of individual units. There was a proposal for a significant reduction in the number of municipal governments as recently as May 2009, in the context of the worsening financial situation and diminishing revenues. The proposal was to replace the existing structure with 15 larger local governments (on the basis of the existing counties) together with the five biggest towns keeping their current governing structures. However, the plan didn't go through and it is unlikely that the issue will be tackled again before the next general elections. Earlier proposals focused on a minimum population requirement of 3 500 residents per unit, with 4 500 in city areas, and aimed at decreasing the number of municipalities by half. A financial incentive was introduced in 2004 to cover up merging costs. Some 27 municipalities have merged since these incentives were introduced and overall since the early 1990s some 60 municipalities have merged. In an analysis of merging prospects Sootla (2009) finds that due to the small size of many rural municipalities, they continue to be run by local elites for extended periods since they are able to obtain an overwhelming majority in local elections. This means both more stability and more experience at attracting central government grants. But it also translates to a certain form of rivalry among municipalities for scarce central government finances, thus undermining the incentives and willingness for co-operation and merger (Sootla *et al*., 2009).

Horizontal co-operation developing

Horizontal co-ordination and co-operation is the other way forward and to a certain extent this is already happening, via joint public service provision in areas such as waste management, transport or social and health care. A number of OECD countries are increasing co-operation among local governments and creating framework conditions for doing so. For example in Switzerland, where municipalities and cantons enjoy a relatively large autonomy, local governments have formed a private company that helps them to tap into bond markets. On the other hand in Denmark, such activity is organised by a public entity. A similar feature already exists in Estonia in the field of public procurement. A non-profit organisation formed by some local governments and the private sector concentrates the experience in public procurement tendering, but using its services is voluntary.

OECD countries use performance measurement systems in order to structure co-ordination both vertically and horizontally among levels of government. In Estonia, financial monitoring is carried out by the Ministry of Finance (the state of municipal finances is available on a monthly basis on the Ministry's website). The National Audit Office established a special unit focusing on local governments in 2006 and the Statistical Office also publishes descriptive annual reports on local governments. Furthermore, the Ministry of Social Affairs has been working on an annual data collection on social services provision and the Ministry of Interior has commissioned a study on a local government capacity indicator. Although primarily descriptive of the geographical, demographic and institutional features, the indicator confirms varying availability of services across the country and that municipalities with a population of over 5 000 tend to perform better than the smaller ones.

Box 3.4. **Local government reforms in the region**

Finland, one of the most decentralised countries within the EU, has imposed minimum service requirements in 2007 as a part of a larger local government reform (PARAS) with a clear goal of encouraging economies of scale (OECD, 2008, 2010e). This notion is based on a voluntary co-operation or mergers with neighbouring municipalities. The trigger for the reform was a need to address a demographic challenge of northern and eastern municipalities that are losing population as younger people move to urban centres while the older generation remains requiring specialised and high quality services. Given that municipal governments are the main providers of health care and elderly care services, these demographic trends threatened municipal financial sustainability as well as capacity to provide adequate basic public services. Different minimum population size has been set for various public services provision and wider co-operation plans on land use, housing and transport. For example, 20 000 inhabitants for primary health care and social services, 50 000 for vocational and basic education. This has been accompanied by financial merger grants of EUR 2 million to 19 million to those that merge between 2008-13 and a possibility of a cut in transfers from the central government for those who do not merge. So far, given that the mergers are still a voluntary option, it has resulted in a considerable decrease of almost 20% in the number of municipalities from 415 to 342 in 2010.

Probably the boldest local government reform in the region has been carried out by **Denmark** in 2007 cuting the number of municipal units from 270 to 98 while reorganising responsibility for health care to five newly created regions. Denmark is a traditionally decentralised country, with a general consensus on the importance of local democracy. Also, voluntary horizontal co-operation had a long history but was often criticised for a lack of transparency and democratic control. Following two previously-failed attempts, this reform has received a strong backing from the central authorities and was carried out relatively fast. It transferred healthcare to the newly formed regions, while municipalities remain responsible for most of welfare tasks and the central government was given a clearer role of overseeing efficiency of services provision at both of the sub-levels. This was accompanied by a new financing and equalisation system.

On the reform process itself, the notion was launched with a commission that assessed whether the existing decentralised system matched the current needs of the population. Its report recommended a total reform of the public sector, including a change in boundaries and reallocation of tasks between the centre and other tiers of government. After a series of public hearings and discussions with the municipalities, the local governments had to take part in a "controlled voluntary process" whereby they could choose with whom they wanted to merge in order to reach a minimum population threshold of 20 000 inhabitants. The government had to intervene in only two cases, but it was important that it could have intervened anyway. There were also a number of carrots and sticks applied, for example a guarantee that no public official would lose a job in the first year of implementation and those who did not reach required population size would not be given new tasks that were transferred to the local governments and would have to conclude compulsory service agreements with their neighbours.

A general overview of political economy of ten fiscal federalism reform episodes in nine OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, Portugal Spain and Switzerland) between 2001 and 2009 found that since institutional framework shaping fiscal relations and powers of sub-central governments are country specific and so are the reform paths (OECD, 2011). However, some common features had been identified from the county-specific experiences. Notably, different government levels do not always have

Box 3.4. **Local government reforms in the region** *(cont.)*

antagonistic interest and often the dividing line runs between wealthy and poor municipalities. Electorate mandate for reform of local governments are important, but not crucial. Reforms often build on earlier attempts and pilot programmes, and most of them consisted of bundling of several elements such as fostering efficiency with increased redistribution. Expert panels operating outside the direct influence of the administration were often considered as a precondition for a successful reform while consultation and involvement of major stakeholders should concentrate on principles. In a number of cases transitional compensations proved necessary as a measure to reduce opposition and forge majorities for support of the reforms. Furthermore, political leadership support tends to accelerate reform with its credibility increasing when the politicians driving the changes have no direct stakes in the reform.

Source: Reforming Fiscal Federalism and Local Government: Lessons From Ten Country Studies (OECD, 2011, forthcoming), *OECD Economic Survey of Finland* (2008; 2010).

Financing mechanism can play an important role in encouraging local governments' co-operation or even mergers. OECD countries apply various schemes of municipal financing. One possibility is a separation of the equalisation mechanism of revenues and costs and involving municipalities financially in those arrangements as is done in Sweden or Finland. Tightening the equalisation scheme is another option and in the Estonian context looking at real costs as well as normative ones could help. Reviewing the existing earmarking and block grants would be warranted in order to ensure that there are no overlaps. The equalisation formula itself can have built-in incentives for increasing the population size as coefficients for tax sharing arrangements can be differentiated for very small population sizes. Maintaining such a large number of small local governments is ultimately only a second best solution and the experience from neighbouring countries in imposing minimum population requirements for provision of a number of public services is fairly telling.

Box 3.5. **Recommendations on public sector efficiency**

Realising efficiency gains in the healthcare system

- An update of the hospital network plan for active treatment should reflect changing healthcare consumption patterns of the population.
- The authorities need to remain vigilant on issues of quality of care and consider developing a wider system of quality indicators, looking also into a broader international context for establishing these benchmarks and co-operation for specialised care.
- The role and importance of primary care should increase by boosting the responsibilities and oversight of family doctors.
- Introduction of a means tested cap on out-of-pocket payments should improve the situation of low income households and protect the chronically ill. Alternatively, this issue should be addressed under existing benefits such as the subsistence minimum. Adequate accessibility of healthcare, in particular dental care, for financially distressed households needs to be ensured.
- Continue with the promotion of generics and least expensive drugs both among patients as well as doctors. Monitor prescribing and dispensing patterns to identify

Box 3.5. **Recommendations on public sector efficiency** *(cont.)*

scope for improvement; disseminate information on best practices for physicians and pharmacists; investigate those that deviate excessively from norms. Contracts with the national health insurer for non-complying providers should then be reconsidered. Oblige pharmacists to always supply the cheapest generic drug. Moreover, the authorities need to be vigilant in safeguarding competition among the pharmacies.

- Reviewing existing remuneration in the health care sector with a view to increasing wages, in particular for nurses, as well as improving general working conditions will be inevitable.

Re-thinking sub-national government

- Reform local governments either by merging or requiring greater co-operation; in this context, consider imposing minimum population requirements.
- Strengthen the revenue raising possibilities by providing the local municipalities with more scope for setting the land tax. One possibility for enlarging its revenues is to bring buildings into the tax base.
- Develop further indicators and monitor quality standards of public service provision to help to build up an argument for consolidation of local government, especially for those municipalities that would be underperforming.
- Tightening the equalisation scheme is another option and in the Estonian context for example looking at real costs as well as normative ones set uniformly by the central government could help. Reviewing the existing earmarking and block grants would be warranted in order to ensure that there are no overlaps.

Notes

1. 70% of the population evaluates the overall quality of healthcare as good according to a Eurobarometer poll, which is the same as EU average but higher than in neighbouring Baltic countries (Eurobarometer, 2010).
2. Data envelopment analysis measures health system efficiency of OECD countries. It creates an efficiency frontier by optimising the input to output ratio to calculate efficiency scores for each country. For more details see Joumard *et al.* (2010).
3. In 2007, public administrative costs for the whole health system accounted for 2.6% of total health expenditure (NHA data). According to WHO the administrative costs are comparatively low: for other countries they ranged from 1.6% of total health expenditure in Hungary, 2.7% in Poland, 3.8% in the Czech Republic and 5.4% in Slovakia (WHO, 2009).

   This is a WHO concept used for international comparisons, but it serves well also for trend analysis. The latter is calculated as median food expenditure. Capacity to pay is then amount available for non-food spending. If actual food expenditure is lower than subsistence spending, then capacity to pay includes total non-food expenditure. See the following for details: Xu Ke (2005).
4. Capacity to pay is defined as household income (or expenditure) above subsistence expenditure. Minimum subsistence levels currently stand at EUR 63 per month in a single person household and EUR 51 per person in multiple person household.
5. A new pharmacy can be opened only when an existing one closes down. In terms of pharmacists per 1 000 population, with 0.65 Estonia already ranks high among pees such as Lithuania (0.64), Czech Republic (0.58), Poland (0.58) and Sweden (0.60) but below Finland (1.55). Based on 2006 or latest available year WHO data.
6. The remuneration of GPs in OECD ranges from 1.4 times the average wage of all workers in Hungary, to 4.2 times in the United Kingdom. In most OECD countries, the remuneration of nurses is above the average wage. This is particularly the case in Mexico, where the income of nurses is more than two times greater than the average wage. In Portugal, it is 70% higher. On the other

hand, the income of nurses is lower than the average wage in Hungary, Slovak Republic, Czech Republic and Finland. In Finland, the growth in the salary of nurses lagged behind the growth in the average wage between 2000 and 2007, but in 2008, nurses have obtained a substantial pay raise which has somewhat narrowed this gap.

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Chapter 4

Estonia: Making the most of globalisation

Estonia has already experienced many benefits of increasing international integration, most obviously in significant convergence. From the Russian crisis in 1998 to the great recession in 2009 Estonia gained an impressive 20% relative to the EU27 average GDP per capita in PPPs. Similar to the other Baltic economies, however, a considerable part of earlier convergence gains was lost in the crisis, aggravated due to the collapse of world trade. While this was also true for Ireland, central European catching up countries like Czech Republic, Poland and Slovakia have been less affected by the crisis and could maintain most of their convergence gains. Nevertheless, prior to the recession Estonia's gap in income and productivity levels compared with the EU average were still around 30% and as the country emerges from recession it faces major policy challenges to maintain its pre-crisis rate of growth potential. The greater focus on closing the productivity gap in manufacturing-for-exports of other transition countries may serve as an interesting benchmark in order to get more out of globalisation.

Even after the crisis a considerable amount of growth momentum undoubtedly still exists. But past growth was associated with imbalances, and estimates of sustainable Estonian growth potential growth may have to be revised down in the aftermath of the financial crisis.[1] Against that background, this chapter looks at the policy conditions needed to maintain, or even accelerate, sustainable convergence by making more out of globalisation. Much of the policy groundwork has already been established in the context of post-independence and pre-EU accession reforms, which have established an economic framework based on market openness and a business-friendly regulatory regime. The focus is on how Estonia can profit from the ongoing process of globalisation to accelerate the process of convergence and bind Estonia to the "core".

Table 4.1. **Estonian GDP per capita convergence (EU27 = 100)**

	1998	2000	2007	2008	2009	1998-2009	2007-09
EU (15 countries)	115	115	112	111	111	–4	–1
Euro area (16 countries)	113	112	109	108	108	–5	–1
Estonia	**42**	**45**	**69**	**67**	**62**	**20**	**–7**
Ireland	121	131	148	135	131	10	–17
Latvia	36	37	56	57	49	13	–7
Lithuania	40	39	59	62	53	13	–6
Hungary	54	55	63	64	63	9	0
Poland	48	48	54	56	61	13	7
Slovenia	79	80	89	91	86	7	–3
Slovakia	52	50	68	72	72	20	4

Source: Eurostat, *http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsieb010.*

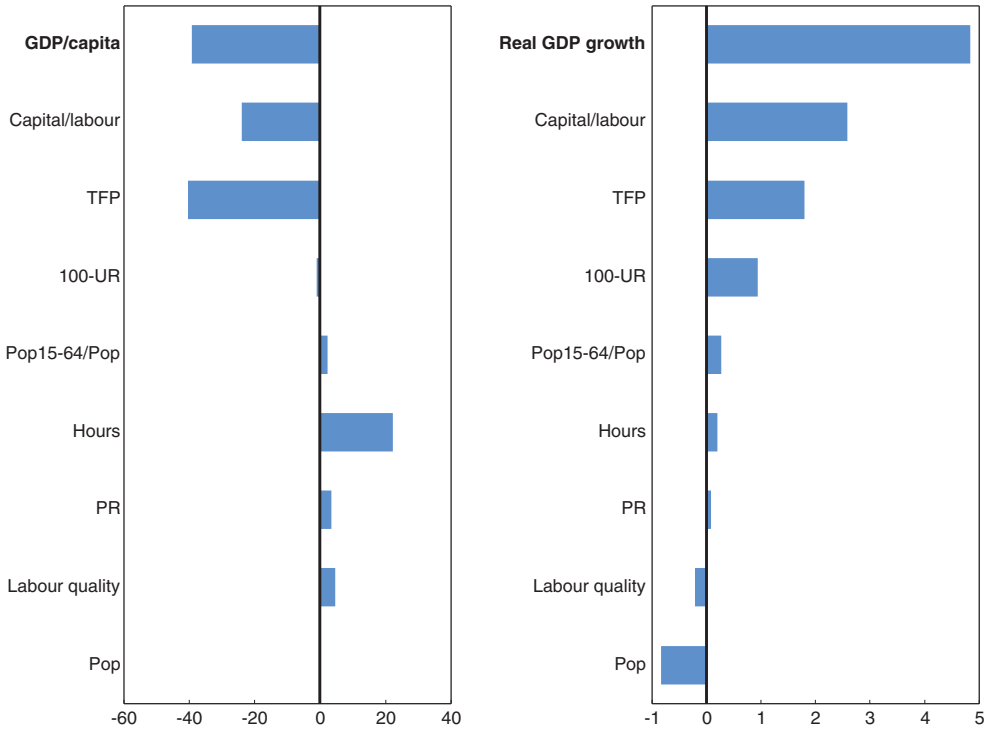
Growth prior to the crisis was driven by loan-financed expansion of domestic demand, which was associated with unsustainable external and internal imbalances. The crisis leaves a legacy which makes it impossible for the economy to grow using the same pattern as in the past. Obstacles also remain in the form of the remote geographical position and the small size of the country and its enterprises. Future growth will need to be much more driven by knowledge and innovation closing the still sizeable productivity gap. Globalisation should turn out to be a powerful instrument in this respect, provided the right policies are applied.

Characteristics and dynamics of Estonian convergence

Convergence was driven by rapid productivity gains…

The Estonian potential growth rate is estimated to have been around 6% over the period 1997-2009, rising to more than 8% between 2003 and 2006 during the EU accession and credit loosening periods (Kattai, 2010). Capital inputs and technical progress (TFP) were the principal drivers of this outcome, making relatively equal contributions, with changes in demographics and labour utilisation contributing to a much smaller degree on average (EU, 2006; OECD, 2009b). Figure 4.1 looks at Estonian output performance, in level and

Figure 4.1. **Components of GDP per capita and real GDP growth, Estonia and EU**



Note: The gap is calculated as *100(EST – EU15)/EU15* using *GDP* in current prices. Component estimates are derived from a Cobb-Douglas production function, $GDP = [TFP][(E)(H)(Q_L)]^a K^{(1-a)}$ which can be transformed into $GDP/POP = [K/((E)(H))]^{(1-a)}[TFP][1 - UR][POP\ 15 - 64/POP][H][PR][Q_L]^a$ or the equivalent equation for *GDP* with *POP* as a component. *POP* is total population, capital/labour is $[K/(E)(H)]^{(1-a)}$, *K* is the stock of capital, *E* is total employment, *H* is annual hours worked per person employed, a is the share of labour in total value added, *TFP* is total factor productivity (the Solow residual), *UR* is the unemployment rate (unemployed/labour force), *POP 15 – 64* is population aged 15 to 64 years, *PR* is the participation rate 100 (*labour force/POP 15 – 64*) and $[Q_L]^a$ is labour quality which is estimated as a function of employment and wage by skill level. Components of the gap are not additive but those for the growth differences are. Details of the methodology are in the *Source*: "What Explains the Differences in Income and Labour Utilisation and Drives Labour and Economic Growth in Europe? A GDP Accounting Perspective European Economy", *Economic Papers*, No. 354, January 2009, Brussels and the related *LAF Database*, available at *http://ec.europa.eu/economy_finance/db_indicators/laf/index_en.htm*.

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growth terms, as it was in 2006 prior to the slowdown, in comparison with the EU (EESTI, 2008). The main determinants of the differences in GDP between Estonia and the EU15 have been capital/labour ratios and total factor productivity (TFP). However, both factors feature positively for Estonia's superior growth rate, indicating convergence. Demographic factors (resident population, birth rate and size of the working age population)[2] and labour market factors (the number of work hours per worker, unemployment and employment rates) have played a much smaller, though on average positive role in the convergence process. This picture is confirmed by a decomposition of Estonia's gap with the top half of OECD countries (OECD, 2011), which is only due to lower labour productivity while labour force participation is above average.

... which may be more difficult to achieve in the post-crisis environment

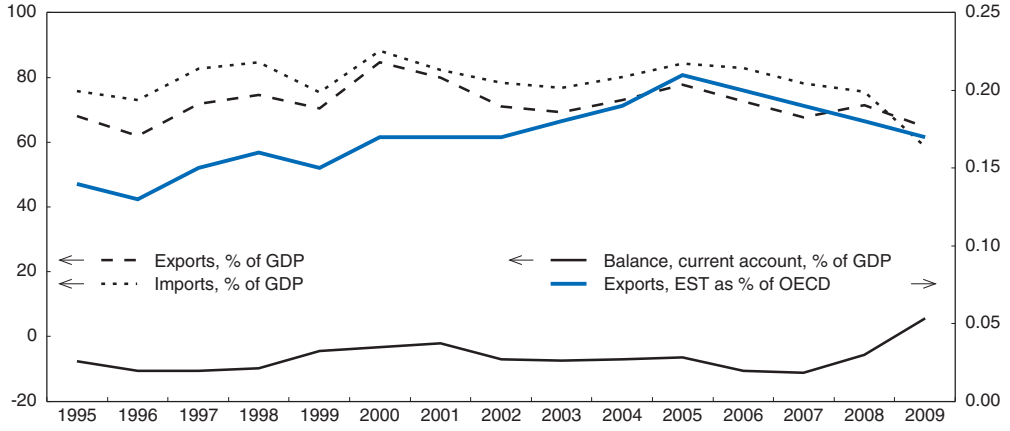
The underlying trends on the supply side still favour relatively rapid convergence, but a high potential growth rate will not restore itself automatically as a replacement for the

unsustainable domestic demand expansion. The decrease in the birth rate in the 1990s has not yet influenced the working age population, but will do so in the coming years, hence reducing the demographic contribution to growth. Significant increases in the level of labour utilisation are unlikely. On the contrary, there is the risk of increasing long term unemployment (see Chapter 1). There is scope and need for further capital deepening. But in the short-term, the impulse from investment will be smaller: investments made in the boom phase were tilted towards specific sectors, such as construction and real estate, and the capital stock generated and the technology brought in will not necessarily match the new demand structure.[3] After the crisis financial markets most likely will not finance similarly large current account deficits as before, requiring a larger export sector with different skill requirements. And in the longer run, the convergence process will bring diminishing returns, so convergence in per capita incomes will increasingly depend on total factor productivity growth rather than of factor accumulation. Within sectors productivity differentials with the EU average are still substantial, particularly in services, so the scope for further TFP growth above the EU average is there. But, the extent to which this is exploited will also depend on the policies in place.

Internationalisation started with exports but then led to foreign-debt growth

The internationalisation of the economy took off immediately after regaining independence and has been the essential spur to growth in the nineties, with the export share moving up sharply to reach a peak of over 80% of GDP at the beginning of the century, since when there was a trend decline to around 70% (Figure 4.2) and started to increase again in 2010 together with a recovery of world trade. The ratio of Estonian exports relative to OECD exports has reached its peak in 2005 and has fallen back about 20% since then. The Russian crisis in 1998 forced an accelerated re-orientation of Estonian export markets from east to west, with long term beneficial effects induced by entering high income markets. This process generated a better division of labour, which has helped to close the gap between the added value and productivity per person created by Estonian enterprises compared with the European Union average, which decreased by approximately 20 percentage points over the first seven years of the 2000s. However, the contribution of manufacturing to GDP growth was smaller than that of real estate, renting and business

Figure 4.2. **Trade in goods and services**

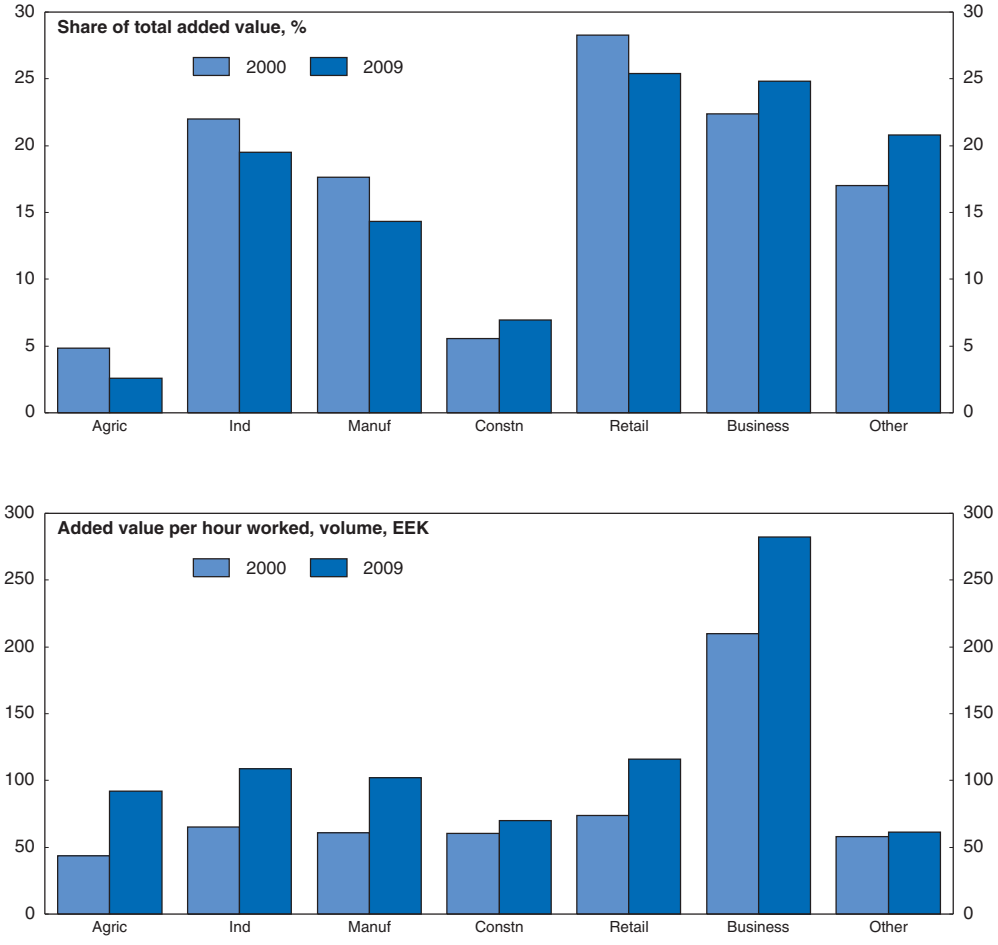


Source: Bank of Estonia; OECD, *National Accounts Database*.

StatLink http://dx.doi.org/10.1787/888932378587

activities. In terms of growth of productivity per employee, the contribution of the manufacturing sector was also behind that of wholesale and retail trade; electricity, gas and water supply, and mining and quarrying (Figure 4.3). The convergence process prior to the recent downturn was thus fuelled to a large extent by domestic drivers.[4] Globalisation played a role here, via FDI-facilitated privatisation activity and financial sector deepening, while the traditional export channels were of secondary importance (EDF, 2008). However, loan-financed domestic consumption and residential investment increases have turned out not to be sustainable, so that this particular growth model is one that cannot be relied on in future because of the imbalances created.

Figure 4.3. **Added value created and labour productivity**



Note: Added value classified by NACE Rev. 1.1:

Agric	Agriculture hunt. forestry and fisheries	Retail	Trade, hotels, restaurant, transport
Ind	Industry including energy	Business	Financial, real estate, renting and bus
Manuf	Manufacturing	Other	Other services.

Source: OECD, *National Accounts Database*.

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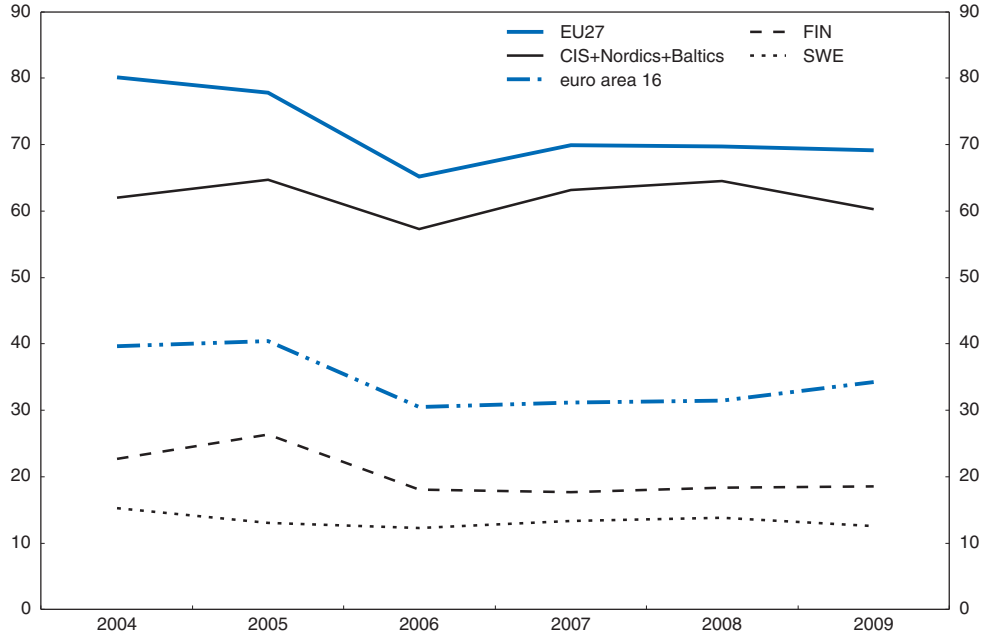
Export performance has been based on factor endowments…

From the export side, the process of Estonian internationalisation has been essentially driven by existing factor endowments and advantages for enterprises to divide the production chain and engage in vertical specialisation (EU, 2006). In that respect, the extent

of specialisation has been constrained by 'gravity' factors, in that Estonian trade levels and patterns have been restored to what they should have been, given its size, state of development, the peripheral degree of integration into core EU markets and its historical and geographical ties to the Baltic Sea region (Paas and Tafenau, 2005).[5] However, as pre-transition trade with the EU was much smaller than the potential trade level predicted by a gravity model, the adjustment to "normal" trade patterns took place with high speed, which may have had some adverse consequences for the corresponding production structures. Trade has expanded principally with its closest neighbours, Finland and Sweden, the other two Baltic states and it recently also recovered with the nearest CIS countries. Trade with the more remote euro area experienced a declining proportion of Estonian exports (Figure 4.4). In concentrating on the production of cheaper and simpler products or cheap sale of natural resources or the natural environment, the country can be described as still on Europe's periphery (Estonian Ministry of the Environment, 2005).

Figure 4.4. **Goods exports by destination**

% of total exports



Note: See Glossary for members of country groups.

Source: Statistics Estonia.

StatLink http://dx.doi.org/10.1787/888932378625

Compared with other central European economies Estonia was gaining less market share during the whole 2000s (Table 4.2). While an initial boost of export market shares ahead of Estonia's EU accession in 2004 was followed by smaller increases in the boom years afterwards, Poland, Czech Republic and Slovak Republic were more successful maintaining this momentum.

Regional integration reveals a clear distinction between Estonian trade development and integration within the EU15. The special relationships between countries of the region in existence have favoured rapid integration of economies with different factor endowments, based on the specialisation in labour-intensive goods of a post-socialist

Table 4.2. **Export market share for selected countries: 2000-09**

Exports/world imports (%)

	Estonia	Czech Republic	Slovak Republic	Hungary	Poland	Slovenia
2000	0.061	0.456	0.182	0.438	0.584	0.136
2001	0.065	0.529	0.200	0.495	0.669	0.148
2002	0.065	0.570	0.219	0.526	0.709	0.160
2003	0.074	0.613	0.273	0.554	0.784	0.170
2004	0.079	0.686	0.281	0.578	0.850	0.175
2005	0.085	0.706	0.287	0.572	0.888	0.174
2006	0.084	0.752	0.326	0.599	0.949	0.178
2007	0.087	0.832	0.388	0.662	1.039	0.195
2008	0.087	0.864	0.407	0.660	1.104	0.191
2009	0.081	0.863	0.404	0.654	1.099	0.186

Source: OECD National Accounts Database via ADB.

country and in capital-intensive goods in the developed countries of the region. Under the conditions of increasing mobility of labour and capital, there will be a significant pressure on these specialisation patterns in both new and old member states. The Baltic Sea Region (BSR) countries now face new challenges to develop more knowledge intensive intra-industry trade and horizontal integration in order to improve national and regional competitiveness in the European and global context.

... generating lower value added per capita than intra-industry trade

In aggregate terms, the composition of Estonian exports mirrors that of OECD international trade in terms of the balance between intermediate and final goods (Table 4.3): intermediate goods represent 56% of OECD goods exports while the Estonian proportion is lower with 50% (Miroudot *et al.*, 2009).[6] The proportions of capital goods (around 20%) and consumer goods (just over 20%) are not much different from the OECD average. Concentration on intermediate trade is not necessarily a weakness, since there is evidence that higher trade flows of intermediates leads to the incorporation of more productive foreign technology into domestic production, as well as having a positive

Table 4.3. **Composition of trade: intermediate and final goods, 2006**

	Total USD million	Intermediate (%)	Consumption (%)	Capital (%)	Ratio of services to manufacturing exports in %	Intermediate to goods (%)	Final (%)
Estonia	10 224	51	21	20	21.2	87	13
OECD	7 702 219	56	21	17	22.9	73	27
Finland	63 488	59	18	17	23.9	79	21
Sweden	116 217	55	23	17	28.0	91	9
United Kingdom	506 111	47	27	19	32.5	78	22
Ireland	67 783	50	24	20	80.3	95	5
Poland	115 211	63	16	18	12.5	66	34
Slovak Republic	42 378	64	15	18	7.2	83	17
Slovenia	20 408	60	19	16	14.0	70	30
Estonia-OECD	–5	0	3		14	–14	

Source: Miroudot *et al.*, 2009.

effect on domestic efficiency *per se* (Miroudot, *op. cit.*). However, the type of intermediate trade in which Estonia is involved may not be the most favourable to growth: intra-industry trade, which is driven by product differentiation and economies of scale, makes up the major share of trade among developed countries and is among the most frequently used value-added indicators of foreign trade.[7]

The share of horizontal intra-industry trade in Estonian exports is indeed slowly increasing. Toming (2006) for instance, focuses on the milk, meat and fish industries, concluding that in general, foodstuffs exports to the EU15 have increased, but only the milk-processing industry has experienced a shift towards higher value-added consumer products. The Estonian food industry requires further investments in product development and quality, as well as in larger production volumes to reap the benefits of the EU market. But inter-industry trade and vertical intra-industry trade still make up a higher share of Estonian trade than most other transition economies (Rojec and Ferjančič, 2006; Fidrmuc *et al.*, 1999).

It would appear that Estonia has been less successful in switching resources to higher-quality segments of the technologically advanced trade sectors.Dulleck *et al.* (2004) consider three dimensions of quality upgrading: shifts in export structure from low to high technology industries; shifts inside industries from low to high quality segments (defined by product category), and quality improvements within industries inside quality segments, defined by high unit values, which are equated with high value added. Countries find themselves in a "low-quality trap" if they specialise in low technology industries, or in low-quality segments within industries, or if they experience negative trends in unit values or unit value ratios. Some evidence of a "low-quality trap" can be found for the Baltic countries with respect to low end specialisation within industries.

Estonian exports have been found as having a relatively low value added, largely because they take the form of intermediate goods (see for example Tiits *et al.,* 2003 and 2006), based on inter-industry or vertical intra-industry trade. International research finds faster growth to be related to the composition of trade: a greater weight of technologically sophisticated goods in exports being more favourable (McCann, 2007). A more knowledge intensive and innovation driven export goods structure appears to allow for longer lasting income generation than an export structure, which relies on cost sensitive goods and services. This means that where cost advantage is the original driver of trade, such trade will diminish as part of the normal process of convergence. Lower-end specialisation is thus a weak basis on which to rely for future convergence, or at least implies the need for Estonia to make a transition to high-end specialisation in the process of convergence.

Estonia has been the recipient of substantial FDI

One of the primary features of Estonian international integration – as for globalisation in general – has been the growth and spread of multinational enterprises (MNEs). During the past 15 years Estonia has benefited more than most Central and Eastern European countries from inward investment. Companies partly or wholly owned by foreigners account for one-third of Estonian GDP and over 50% of exports. However, manufacturing accounts for only 14% of the FDI stock, concentrated in traditional industries like food processing, textiles and wood products (Figure 4.5). One third of the stock of FDI is in financial intermediation, real estate and renting and a further quarter is invested in real estate, renting and business activities. This pattern is in contrast to for instance the Czech Republic (Table 4.4) as well as other central European FDI locations, where foreign investors have focused increasingly on modern manufacturing sectors (*e.g.* office machinery,

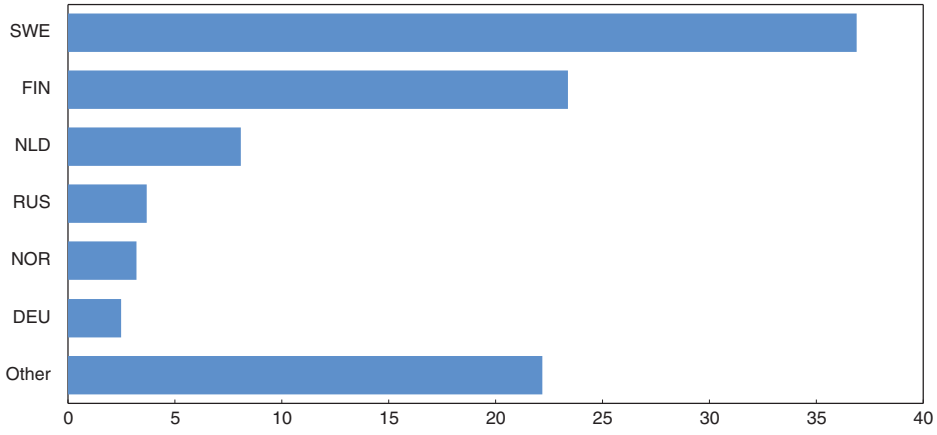
Table 4.4. **FDI stock by activities: Czech Republic and Estonia**
Inward FDI positions by industry, % of total, 2008

	CZE	EST
Manufacturing	35.1	13.7
Electricity, gas and water	7.9	2.8
Construction	0.9	3.0
Trade, accommodation and restaurants	9.7	12.6
Transports, storage and communication	6.9	4.9
Financial intermediation	19.5	36.1
Real estate, renting and business activities	15.8	24.9
Other	4.3	2.0
	100.0	100.0

Source: *OECD DotStat*, 1 October 2010.

computers, telecommunication, cars). In terms of geographical provenance, Sweden and Finland are the main investors in Estonia (Figure 4.5) and the other Baltic States, whereas Germany is the largest investor in the new EU member states overall.

Figure 4.5. **FDI stock by country provenance, 30 June 2010**
% of total inward FDI stock



Source: Bank of Estonia.

StatLink http://dx.doi.org/10.1787/888932378644

Apart from its capital deepening, FDI can provide technology spillovers to domestic manufacturing firms, together with other "knowledge effects" improving working methods and management skills.[8] In this regard, Estonia may not have benefited as much as might have been expected from existing FDI. As far as manufacturing investment is concerned, foreign-owned firms have, on average, higher labour productivity levels than domestic enterprises; however, firm-level labour productivity at the turn of the century tended to be lower where FDI was oriented towards exports (Vahter, 2004), indicating that export activity in foreign manufacturing firms is only exploiting cost advantages.[9] More recently Vahter (2010) finds no significant evidence of intra-industry productivity spillovers from FDI entry in the short term, though it does seem to stimulate process innovation among domestic Estonian firms.[10] While Masso *et al.* (2010) also find that foreign-owned companies and domestic multinationals have higher productivity than indigenous firms, performance is quite heterogeneous and productivity spillovers most often apply to

effects on vertically- linked downstream or upstream industries and are rarely found horizontally, within the same industry.[11]

Estonian inward direct investment is driven by cost advantages

The specific industry and country orientation of Estonian inward FDI has been a factor behind the concerns about the low value added of Estonian exports, noted above. It appears that Estonia attracts manufacturing FDI due principally to lower costs compared to investors' home countries, creating the danger of a low-productivity "trap" (Tiits *et al.*, 2003 and 2006). Some evidence on this is provided by research into Swedish and German MNEs (Becker *et al.*, 2005). The location choices and employment responses of both are driven by standard gravity factors such as host country GDP and geographical distance but, allowing for these, German MNEs tend to be attracted to countries with relatively abundant supplies of skilled labour, while there is no evidence of such skill tracing for Swedish MNEs. Indeed, Swedish and Finnish corporate reports suggest costs are the most important factors in determining inward direct investment (Kattel and Kalvet, 2006).

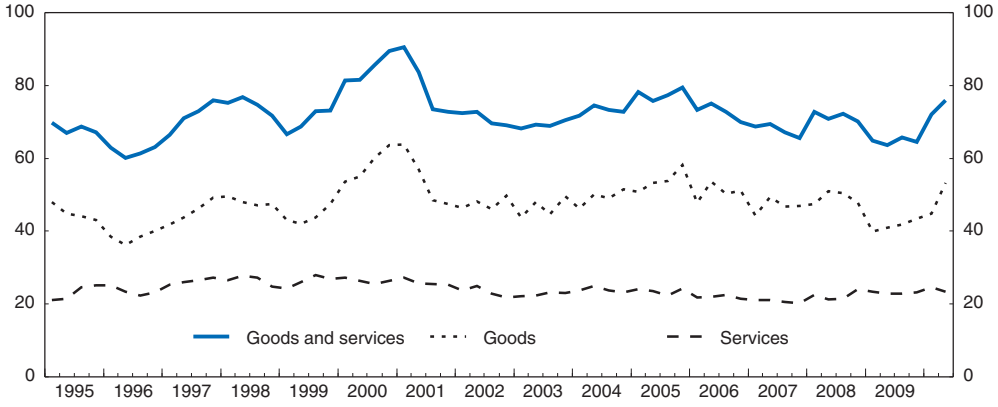
There is also some evidence that inward FDI may not have contributed much to the internationalisation of Estonian companies in the sense that they have mostly concentrated their activities on the Baltic markets or exported their production to the home market of the foreign parent (Reiljan, 2002). Foreign-owned enterprises were initially mainly interested in servicing the market of the Baltic states, later intensifying their activities in Finland, Sweden and other EU countries, but foreign direct investments into Estonia have mostly been of market-seeking nature. Conversely, the share of investors with other motives (for example, efficiency-seeking) has been rather low. Estonian foreign direct investments have been primarily oriented to geographically and economically close markets and foreign companies do not appear to have acted as "door-openers".

The service sectors' contribution to growth is important

While just over a quarter of employment is in manufacturing, the largest group of enterprises (around a third) is in the service sector. Globally, the manufacturing industry continues to be a major user of the output of the services sector as boundaries between products and services are becoming blurred and industrial companies "enrich" their products and value chains with services. With manufacturing shifting from developed industrial countries to lower-cost locations – a phenomenon which could affect Estonia in the future – manufacturers in developed industrial countries are focusing on developing and supplying services that add value to products and managing increasingly more complex production and supply chains. For example, the second highest sales contribution to the turnover of the Estonian ICT sector in recent years has been from telecommunication services, computer-related services, ICT equipment and computer manufacturing making up 31%. Exports make up a third of ICT sales, of which the services element is the fastest growing.[12] While no trend exists as yet for Estonian service exports to increase as a ratio of GDP, they have been less volatile than goods exports in the face of the global slowdown (Figure 4.6).

Furthermore, encouraging foreign presence in the services sectors can generate stronger positive productivity effects than manufacturing presence (Lesher and Miroudet, 2008).[13] Internationally, among sectors, computer and related activities, hotels and restaurants, construction, post and telecommunications and other business activities show strong FDI spillovers via backward linkages. In addition, FDI-related spillovers via forward linkages are found in wholesale and retail trade or other business activities. At the

Figure 4.6. **Exports**
% of GDP



Source: OECD, *National Accounts Database*.

StatLink http://dx.doi.org/10.1787/888932378663

aggregate level, the research indicates that encouraging foreign presence in service sectors can generate strong positive direct and indirect effects in the economy, suggesting that service industries enjoy the strongest productivity-enhancing effects of FDI, particularly through downstream linkages. Direct evidence as to the effects on Estonian service sectors is unavailable. However, the share of innovative Estonian SMEs, especially in the service sector has been growing fast, albeit being concentrated almost wholly on employing new equipment (EESTI, 2009). The exports of innovative companies have been growing at a rate of 20-25% a year, albeit from a low base (CREST, 2007).

Domestic SMEs are active in the internationalisation process

While the sectoral distribution of productivity gains will have been due in part to industrial restructuring, including privatisation, to which capital inflows have contributed, the pattern of gains also points to the important role of small and medium-sized enterprises in the convergence process. A survey carried out by the European Commission found that the share of Estonian small and medium-sised enterprises (those having less than 250 employees) that export their goods and services is by far the highest among EU countries.[14] Nearly 40% of Estonian SMEs are involved in international co-operation activities such as direct foreign investments, technological co-operation and sub-contracting. Moreover, the foreign activities of locally-owned enterprises are in many cases more diversified than those that are foreign owned, suggesting that local firms tend to possess more extensive knowledge of different foreign markets, which might serve as a competitive advantage (Reiljan, 2002).

Smaller companies are dynamic but also more fragile

While institutions with more than 100 employees account for the most significant share in the Estonian economy, employing more than a third of the total workforce, creating about 40% of the corporate net value and accounting for the bulk of exports. Nevertheless, smaller enterprises have tended to be more dynamic, creating most new jobs and earning higher profits (Bank of Estonia, 2010). Companies of all sizes shared in the expansion of the boom years, but new micro-companies are the main reason for the rise in

the number of companies. They have a higher ratio of profit to value added than larger ones. They do not seem to operate under the same price/wage constraints as more internationally exposed companies. This is an advantage, but can also create instability when macro-economic conditions fluctuate. Smaller enterprises also have less efficient stock management. These factors may help explain why the survival rate of Estonian companies is low: slightly more than half of Estonian micro-companies (57%) are still viable three years after registration, which indicates that a large number of new companies are liquidated within three years of their foundation (MEAC, 2008). Certainly, smallness is an impediment to internationalisation, purely from the cost point of view, so there may be problems in facilitating small company growth. But there may also be other institutional factors (capital markets, legal environment, entrepreneurial culture, and support structures for businesses) which have a large role to play in increasing the low survival rate.

Emerging issues and challenges

Against the background of a growth performance which has in many respects been impressive, a number of inferences arise about the future shape and strength of Estonian growth and the policy issues they generate:

- Convergence has been driven by forces of international trade integration, product-market liberalisation and an open capital account, based on static structural factors like traditional trade specialisation and "gravity" factors and unsustainable dynamic factors, like debt-financed real-estate and private consumption growth. This has been an overall advantageous and appealing stage in Estonia's development into a modern market economy, but this has latterly been impeded by the bust of the loan financed domestic demand-led expansion. Future growth will thus need to be based on regulatory reform and a stable macro environment.
- Successful future convergence will require a transition to export performance based not only on cost advantages but also on differentiated products with a wider geographical scope. Manufacturing resources are not currently concentrated in areas where global trade patterns indicate that value added is greatest, or where employment is shielded from further "footloose" migration. At the same time, Estonia is still geographically restricted in its export patterns, displaying some of the characteristics of a peripheral economy. For the future there is therefore a need for resources to be reallocated to higher-value occupations.
- Entrepreneurship is an important factor in Estonian economic dynamism, but SMEs are subject to greater instabilities and impediments to growth than larger firms and face greater difficulties in engaging effectively in the process of internationalisation. At the same time, internationalisation extends beyond traditional goods trade and encompasses the service sectors of the economy, which have a major potential for achieving convergence. These sectors are actually the fastest growing but judging by value added per person there is an as yet untapped potential for contributing to convergence. They also offer greater potential for exports, inward direct investment and spillovers than is sometimes realised.
- FDI needs to be focused more on areas where technological spillovers are greatest. Sustained inward direct investment is needed in areas where productivity and innovation spillovers are greater than they seem to be at present. However, the degree to which internationalisation spills over into productivity growth depends on the

absorptive capacity of the economy. Various prerequisites in terms of R&D and education (and skills) infrastructure are needed for technology to flow from foreign companies to domestic firms and for export expansion to develop towards greater product innovation.

Framework policies for reaping more benefits of globalisation

Openness has been an effective strategic approach

Institutional convergence has been more rapid in the Baltic states, notably Estonia, than in the other EU NMEs, paving the way for institutionally dependent productivity gains. Hall and Jones (1999) attribute higher TFP levels *inter alia* to better institutions. These level effects on productivity will be permanent, but the effects on potential growth could wear off (Van Ark, 1999) as many of the reforms needed to create functioning market economies and to meet the institutional and legal standards of EU membership are achieved. Trade openness is an important ingredient in this: there is a significant and positive correlation between the degree of trade openness and productivity growth performance. Frankel and Romer (1999) stress the role of openness to trade as the driver of TFP, though the direct links from the one to the other are difficult to demonstrate because of the endogeneities between them. An open trade regime implies efficiency gains from exploiting economies of scale and comparative advantage, but in addition stronger competition induces greater knowledge transfers from foreign to domestic firms. Thus, a liberal trade regime and competitive market conditions can be seen as essential components of a policy designed to maximise the benefits of globalisation. In that context, Estonia scores relatively well.

Barriers to trade and foreign investment are virtually absent

Estonia ranks as a relatively open economy with an internationally very low prevalence of trade barriers and burden of customs procedures (WEF, 2009) and a virtual absence of regulatory barriers – reflecting an absence of non-tariff barriers and the prevalence of mutual recognition agreements or international harmonisation (OECD, 2009a). Similarly, Estonia scores better than the OECD average according to the OECD's PMR scale and the WEF's measure of the business impact of rules on FDI: there are no barriers in the form of general and sector-specific restrictions on foreign acquisition of public and private firms, obligatory screening procedures and operational controls for affiliates of foreign firms (such as nationality requirements for key personnel). However, restrictions remain in place for the acquisition of land in strategic areas by non-EU nationals.[15]

The competition policy environment requires vigilance

Taking a broader perspective on efficiency and competition – encompassing antitrust activities, market dominance, public procurement and network sector inefficiencies – Estonia emerges relatively well according to global institutional indexes (WEF, 2009). The primary rules of Estonian competition law were enacted in 2001. Estonian competition policy is generally in line with EU competition principles. However, the situation has required considerable vigilance in the face of a deteriorating economic climate in which the incentives for collusion or abuse of a dominant position have probably increased (Competition Authority, 2009). There are three areas of concern, focusing on whether the

competition authority has enough resources to be reactive, but not enough to be proactive against competition abuses:

- The Competition Authority began operation as a merged authority during 2008,[16] as a result of which the personnel responsible for supervisory activities were significantly reduced. Priority has been given to the fight against hard core cartels and six criminal proceedings were initiated in 2008 to disclose cartels, operating in different economic sectors, but mostly concerning public procurement. In 2009 a leniency programme came into force, according to which a cartel member who is the first to inform the authorities will get immunity from punishment. According to global experience this is the most effective means of detection of cartels, but the situation will require monitoring.
- There is a significant increase of investigations against firms exploiting a dominant market position, focusing on waste management, water, telecommunications and the financial sector. Despite the significantly heavier workload per employee, the aim is to allow one year on average for administrative proceedings, which corresponds to the general practice in the EU. But since the number of proceedings increased significantly and the number of employees decreased, the key question will be whether the efficiency and speed of the supervision related workflow can be maintained.
- There may also be scope for disseminating the work of the Competition Authority more widely. The survey of small- and medium-size enterprises referred to above found that a large majority of small businesses (84%) has had no interaction or has no information about the activities of the Competition Authority.

There are competition challenges in the utilities and local authority sectors

While competition in telecommunications is fierce, dealing with dominant utilities remains a challenge. Some important infrastructure services are provided by fully or partially state-owned companies or groups which effectively enjoy a monopoly. Selling stakes in some of those companies to strategic investors poses important challenges with respect to provision of infrastructure services which are important elements of competitiveness and locational attraction. The validity of such concerns should be regularly evaluated and remaining state-ownership in such companies be considered for privatisation if there are no clear reasons found which make state-ownership necessary.

The activities of local authorities are also of some concern insofar as some of their actions (such as granting sole rights) can adversely affect the competitive situation and have necessitated intervention by the Competition Authority. While a great part of the state's contracts are awarded as a result of public procurement, the National Audit Office has recently found that many companies founded by rural municipalities and cities have interpreted the Public Procurement Act as not applying to them and have failed to organise tenders for public procurements upon making purchases. This has resulted in a serious lack of transparency at the sub-central government level, including hospitals (see Chapter 3).

Barriers to entry are low

As regards barriers to entrepreneurship and market entry in general, Estonia ranks as a relatively open economy with a favourable business environment, according to formal international comparisons (OECD, 2009; World Bank, 2009; and WEF, 2009). Decisions to start a business are determined by an array of factors, but the regulatory framework is an important element in market entry. In that respect, a survey of small- and medium size

enterprises by the Ministry of Economic Affairs and Communication concluded that only 4% of all enterprises consider the regulatory environment in Estonia as hindering competition. The degree of regulatory and administrative opacity facing new entrants (licences, permits, simplicity of procedures) has significantly decreased over the past half decade (as in a number of other OECD economies) and Estonia performs better than the OECD average in terms of the World Bank's index of ease of market entry, both as regards time spent starting a business and completing the formalities for warehouse construction (Table 4.5). Nevertheless, comparing the situation with Estonia's larger neighbours, Finland and Sweden, scope would seem to exist for further improvement. In particular, OECD PMR indicators show a slightly higher than average level of administrative burdens on sole proprietor start-ups.

Table 4.5. **Ease of market entry**

Region or economy	Starting a business			Min. capital (% of income per capita)	Completing construction formalities[1]		
	Procedures (number)	Time (days)	Cost (% of income per capita)		Procedures (number)	Time (days)	Cost (% of income per capita)
OECD	5.7	13	4.7	15.5	15.1	157	56.1
Estonia	**5**	**7**	**1.7**	**23.2**	**14**	**118**	**26.9**
Finland	3	14	0.9	7.2	18	38	119.7
France	5	7	0.9	0	13	137	22.9
Germany	9	18	4.7	0	12	100	60.2
Latvia	5	16	2.1	14.2	25	187	17.3
Lithuania	7	26	2.4	31.1	17	162	95.7
Netherlands	6	10	5.6	49.4	18	230	107.2
Slovak Republic	6	16	2	23.8	13	287	13.6
Slovenia	3	6	0	43.3	14	197	79.9
Sweden	3	15	0.6	28.5	8	116	103.3

1. Time, and costs to build a warehouse, including obtaining necessary licenses and permits, completing required notifications and inspections, and obtaining utility connections.

Source: World Bank (2009).

The administrative burden on firms is lighter than average

Steps have been taken to create a favourable legal environment with a relatively low level of bureaucracy and high level of transparency,[17] and current assessments are that the burden of regulation is internationally low. Estonia ranks 16th in the World Bank rating on the ease of doing business (WB, 2009). Moreover, the regulatory impact assessment (RIA) system (in operation since 1996) is functioning more effectively in Estonia than in other new member economies (Staronová, 2010, and Jacobs, 2006).[18] Impact statements are attached to the explanatory memoranda of all proposals, while implementation measures are systematically discussed. Estonia also scores highly on the quality of information regarding public consultations and predicted impacts, where it both identifies and directly consults affected parties. As in other countries, options in Estonia are not discussed, however, because formal guidelines do not ask for this, while *ex post* evaluation measures are not formally required. The more effective implementation of RIA is due in large measure to the role of the State Chancellery, which exercises a strong executive oversight over line ministries. As elsewhere, however, RIA does not encompass systematic reviews of established regulations.

While the overall assessment is favourable, specific areas of state regulation may still be problematic. Two-fifths of entrepreneurs see legislation and bureaucracy as a significant obstacle to development (MEAC, 2008). As regards the complex administrative procedures related to establishing a company, particularly excessive notarisation of legal deeds, the World Bank ranks Estonia as the weakest among 155 countries. The action plan drawn up by the Ministry of Justice aims to tackle problems of still excessive red tape in this area, *inter alia* by reforms to company law: simplifying the setting up of a business and communication with government institutions (by creating a one-stop-shop), simplifying regulation of the fields of activity with special requirements and making regulations more transparent, improving access to high-quality legal aid (including the availability of the services of the notary public) and making government fees and charges cost-based.

Developing a favourable entrepreneurial environment

While a favourable competition and regulatory environment fulfils one of the essential conditions for entrepreneurial development and firm creation, it may not be sufficient for an entrepreneurial climate to develop. Policies may need to actively support the development of an entrepreneurial culture, foster the international development of firms, improve SME access to funding and promote the conditions where domestic firms can absorb the technological benefits of globalisation. At the same time, it is important that state intervention does not turn into state aid, with respect to which Estonia's position is favourable, or a strategy of "picking winners", the international track record for which is very poor. Implementation of Estonian industrial strategy has been in the hands of *Enterprise Estonia* since 2001 (Box 4.1).

Box 4.1. **Implementing Estonian industrial strategy**

The reorientation of entrepreneurship and SME policies in the early 2000s was accompanied by significant "institution building" in OECD economies (Mittelstadt and Cerri, 2005). In the case of Estonia, the principal institution for implementing entrepreneurial policies has been *Enterprise Estonia*.

Mission and structure of *Enterprise Estonia*

Enterprise Estonia (EAS) was established in 2000 and promotes business and regional policy in Estonia. EAS is one of the largest institutions within the national support system for entrepreneurship, providing financial assistance, advisory, co-operation opportunities and training for the entrepreneurs, research establishments, public and third sector. *Enterprise Estonia* operates in the following sectors (in addition to tourism and regional development which are beyond the scope of this chapter):

- Sustainability and acceleration of growth of the new companies.
- Improvement of export and product development capability of Estonian companies.
- Encouragement of foreign direct investments.

Pursuant to the accession of Estonia with the European Union, *Enterprise Estonia* became an implementing unit of the structural funds of the European Union in Estonia. Most of the grants and other programmes are to be co-financed from the structural funds. In the financing period of the European Union of 2007-13 *Enterprise Estonia* can apply EEK 13 billion (EUR 830 million) out of the total of more than EEK 53 billion (EUR 3.4 billion) of structural assistance for Estonia. In September 2008, EAS was divided into 9 divisions:

Box 4.1. **Implementing Estonian industrial strategy** *(cont.)*

business start-up; business capacity; innovation; export; tourism development centre; internationalisation; living environment; business environment; and regional co-operation. For more information see *www.investinestonia.com/en/about-the-agency/enterprise-estonia*.

R&D, technology and innovation (RTDI) activities

EAS is the implementing body for the technology and innovation measures of the Estonian National Development Plan through the sub-measures aiming at: 1) financing R&D and innovation; 2) strengthening innovation systems; 3) increasing awareness and knowledge about innovation; and 4) strengthening international co-operation in the field of R&D and innovation. The support schemes of *Enterprise Estonia* are targeted at increasing RTDI capacities in existing businesses and stimulating the creation and growth in new technology-based businesses, based on the principles worked out in the Estonian Research and Development Strategy "Knowledge-Based Estonia 2002-06" and *Estonian Research and Development and Innovation Strategy for 2007-13*, where the next priority research areas are stated: 1) user-friendly information technologies and development of the information society; 2) biomedicine; and 3) materials technologies.

No specific research priorities are established by *Enterprise Estonia* itself. Research priorities are: direct support of business R&D (grants and loans); horizontal measures in support of financing; research infrastructures; support to sectoral innovation in manufacturing; pre-competitive research; applied industrial research; knowledge transfer (between researchers); human resources development; and international research collaboration and networking.

The entrepreneurial culture needs fostering

To different degrees, all OECD countries have put a strong emphasis on entrepreneurial education (Mittelstadt and Cerri, 2005) and Estonia has also fostered an entrepreneurial culture. "Estonian Enterprise Policy 2007-13" includes strategic objectives for the development of entrepreneurship in Estonia. In order to develop the knowledge and skills of business operators, the training, in-service training and retraining of business managers and employees and the involvement of external consultants have been supported since 2001. A mentor programme was launched in 2004 enabling start-up enterprises to find supervisors among experienced business operators or experts in their particular field of activity. Management quality is also being developed involving the training of top and middle managers, the distribution of novel administrative principles, the guidance of small and medium-sised enterprises towards management involving greater awareness and the elaboration of tools necessary for the systematic development of management quality. In 2005-07, innovation audits were carried out in Estonian enterprises with the help of *Enterprise Estonia* aiming at raising the innovation awareness of the managers of the enterprises and motivating them to initiate, support and realise innovative activities in their companies. The feedback received is being employed to develop a basic diagnostics service for enterprises.

The internationalisation of firms needs to be supported because of the small size of the Estonian economy

There is some dispute in the literature as to how far export activity is endogenous for highly productive firms. Arnold and Hussinger (2005) find that highly productive German

firms chose to export, although export activity as such does not further boost productivity. This finding would suggest focusing entrepreneurial support on measures which increase productivity with no particular role for supporting export activities. However, in the case of Estonia the small size of the economy should be taken into account. Assuming that the division of labour and specialisation progress in the same way in space as elsewhere, it can be assumed – and is indeed observed – that economic activity in small countries like Estonia needs to cross borders more often than in big economies. It is therefore likely that those transactions, which make a firm highly productive, will more likely involve global activities. If international activities are more costly on average than domestic activities then this constitutes an obstacle for especially still small firms to grow.

Purely from the cost point of view, smallness is a problem for firms seeking to expand internationally, so that there would seem to be much to gain from co-operation with respect to purchases (such as printing and paper procurement; metal and metal procurement) and from sharing entry costs into foreign markets. Pooled marketing costs and advertising, together with effective information dissemination would help, but require central initiatives. Co-operation among Estonian enterprises is now more frequent than in the European Union on average, but this is mainly in respect of suppliers and customers who are interested in semi-manufactured articles. The government aims to support entrepreneurs in the different phases of internationalisation, through the reduction of one-off sunk costs and reducing the risks of foreign operations. Various measures and activities are also directed towards supporting joint marketing, reflected, for example, in an export subsidy from *Enterprise Estonia* designed to promote such activities. Since a lack of export-related knowledge and skills is a problem for potential and new exporters, establishing support units for internationalisation and a counselling network to provide advice in the destination markets has also been a priority. *Enterprise Estonia* offers business operators a range of internationalisation-related information services.

The objective of enterprise support is that firms based in Estonia, including small firms, should become increasingly involved in international networks, assuming different functions there, including functions that will gradually become more complex and expensive (EESTI, 2008). The government will contribute to such networking through its support measures, making use of also the relevant opportunities provided by the EU. In part such networking will take place by mediation of the firms and institutions of the neighbouring country Finland.

Strategically, the official aim is to help in the formation of clusters in co-operation with professional associations and business representative organisations. The intensity of clusters in Estonia is still rather low and there has been no noticeable trend towards clustering. The *National Strategic Reference Framework 2007-13* includes plans for the first central government initiated cluster programmes in Estonia. Identifying potential clusters and assisting in their development raises various problems, however. In principle, governments should concentrate on reinforcing and building on established and emerging clusters rather than attempt to create entirely new ones. This implies that the state should have policies for reinforcing different aspects of the clusters, such as R&D capabilities, infrastructure, market regulations, tax policies, standards or regulations that influence or determine buyers' needs, general societal environment supporting co-operation and networking, support for international competitiveness and so forth. It also means that the state should refrain from artificially creating clusters not corresponding to the local conditions and should be aimed at and implemented on the proper level of government

policy-making capacities (Kettel *et al.*, 2006). Clusters are most often associated with rather highly developed countries or regions and the policy tools used in clustering discourse assume a relatively high level of education, R&D, private sector networking, and, above all, functioning and capable governance structures. Estonia is still moving towards achieving these conditions and may be too small for clusters that are comparable to the rest of the EU countries in size. The smallness of the economy is especially relevant with the view to the size of the possible pool of employment in a cluster area: in total employment terms only the fishing and fishing products cluster of Estonia (out of 38 clusters defined in Kettel, 2006) has an employment level that is comparable to the top 5 fishing and fishing products clusters in the EU10. In all other clusters, employment is considerably smaller than in other EU10 regional clusters. In that respect, its positioning to take advantage of clustering may be much weaker than in most EU10 countries. Prior to the initiation of specific policies, there needs to be explicit confirmation that the basic foundation needed for clusters is present.

Efficient financial services are critical to firm development

FDI in the financial sector has led to rapid financial deepening and integration and has been a particularly noteworthy characteristic of the catching-up process. Prior to the financial crisis, there was an improvement in the ability of companies to fund expenditure from internal sources, due to high retained profits, and improved access to institutional finance. However, financial convergence in a global environment of excessively low risk premia also contributed to the overheating and did not ensure the most efficient allocation of financial resources. Prior to the crisis, only about one-third of Estonian SMEs reported that finding additional money for expansion was a substantial problem. Nevertheless, starting entrepreneurs, which have no security and no well-formulated business plan or company financial history to confirm their creditworthiness, have particular difficulties in finding financing. By comparison with the business sector in general, finding additional funding ranks first among the problems of small companies and starting companies, and 67% of entrepreneurs found the lack of financing possibilities the largest obstacle that they needed to overcome when starting their business.

Financing expansion can also be difficult. Firms can be caught in a vicious circle where they have no internal finance to cover the necessary investments, because low productivity has not generated enough profit. Two-thirds of the companies who invested in fixed assets in 2004 only used internal finance and retained earnings from previous periods, whereas leases and bank loans were used mostly by larger companies. Hence, government efforts are above all needed in small companies with an unutilised productivity growth potential and whose access to bank loans and leases is limited. Estonian entrepreneurs do not have a favourable attitude towards outside investors – only 27% see them as an opportunity of raising additional funds. One of the reasons is the short and still developing tradition of investor relations in Estonia. The focus should thus be on expanding companies' know-how and skills on how to raise capital in an appropriate form and extent. Here, attention should also be paid to mediating contacts between potential investors and companies in need of productivity increasing investment.

The most effective start-up scheme for an entrepreneur would thus be comprehensive and contain access to other support services and entrepreneurship-related information and knowledge, in addition to investment support and distribution of financial risk. In addition, a good start-up scheme would be easily accessible for the economic operator and be based co-operation with private institutions where the public sector contributes only in

areas where private markets do not function. In that vein, the objectives of investment support should be to make seed capital accessible to new entrepreneurs and to ensure enterprises have the skills and the opportunities to raise capital and to make productive and future-oriented investments. State guarantees for start-up and micro-loans, the launching of traditional venture capital funds and the provision of intermediate equity financing for operating and rapidly growing small companies would form part of the apparatus for such funding, as would the development of business angel networks, including supporting companies in gaining access to foreign business angel networks, which provide not only capital but also expertise. Modelled on European best-practice (with Finland and Sweden being role-models in many instances), Estonia has successfully developed a number of institutions and instruments relating to funding structures and mechanisms. The Estonian Development Fund (modelled on the Finnish Innovation Fund) became operational in 2007, charged with nurturing early stage seed/venture capital investments into technology based start-ups and with the allocation of resources for the development of effective long-term policies and investments (accelerated production restructuring and developing technological companies).

Service sectors offer the greatest potential for product differentiation

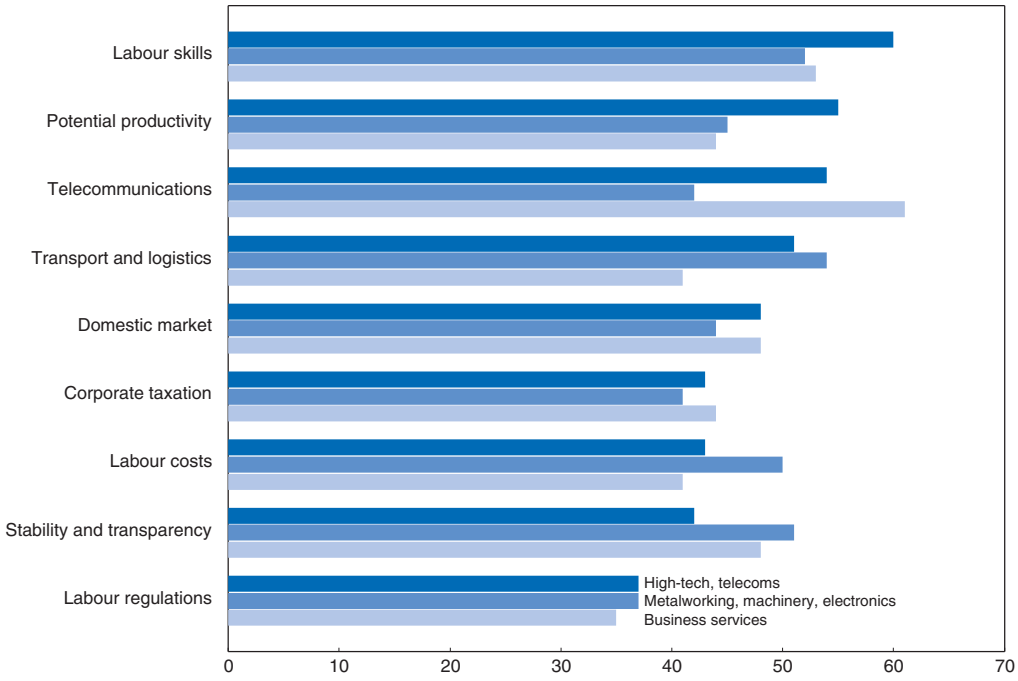
Internationalisation also requires the facilitation and promotion of inward and outward direct investment. The perception that Estonia has not been attracting FDI which does not have the same value-adding potential as in some other transition economies has been an important driving force behind Estonian industrial policy. However, the state has an important informational role to play (exercised by *Enterprise Estonia*), including foreign representation and offering proactive solutions to involve foreign investors in Estonia's priority sectors. This goes beyond the traditional emphasis on manufacturing, emphasising the opportunities in the services sector, which forms a part of the Development Fund's *Foresight Action Plan* for 2018. The most attractive services are identified as those that are knowledge-based and generate high value added, such as telecommunication services, business services, financial intermediation, consulting services, exportable health care and education services, transportation and logistics services, and the creative industry. The aims of the *Foresight Action Plan* are: 1) to understand the characteristics, development dynamics and governing forces of the services sector; 2) to map the state of play in the Estonian services sector while assessing its future prospects, including highlighting the activities/niches with the best prospects; and 3) to suggest a policy framework that policy makers could use for enhancing innovation and export capacities of the niches in the services sector that offer the best prospects.

Inward FDI decisions are to a great extent, driven by the fundamental characteristics of the economy as already discussed above. However, the conditions necessary to foster an export-oriented and sectorally diverse services economy, as is the objective, may differ in important respects from those which drive resource-based growth. Telecommunication infrastructure is more important than transport and logistic infrastructure for many of the services which form the basis of modern trade expansion.[19] In that respect, Estonia has established a reputation for having a highly developed telecommunications infrastructure, with respect to Internet coverage and cell phone usage; the application of new technologies to banking and government; the development of intelligent user-friendly interfaces (*e.g.* in the fields of mobile telecommunications and e-health applications); and the accessibility of public e-services. Moreover, labour skills are more important than labour costs or even

labour market flexibility (Figure 4.7). Both technological innovation and skill enhancement form part of the objective of creating a knowledge-based society and are discussed in greater detail in the next sections.

Figure 4.7. **Factors determining location decisions**

% of respondents



Note: Sorted by location factors for high-tech, telecoms.

Source: *Ernst and Young European Attractiveness Survey 2009.*

StatLink http://dx.doi.org/10.1787/888932378682

Policies may be individually sound but lack collective cohesion

While there is a clear strategy in favour of enterprise development, bringing the various policy strands together into a seamless whole, which can be aligned with the objectives involved, has proved difficult. Business policy has had two main goals since 2004: to make companies more productive; and to increase their export capacity. The state has granted approximately EEK 7.4 billion (EUR 473 million) in business support through *Enterprise Estonia* (EAS) and the Credit and Export Guarantee Fund (KredEx) for the purpose of increasing the competitive strength of Estonia's economy (Table 4.6). However, the National Audit Office has found that state enterprise support has not made Estonia's economy more competitive – the low productivity and export capacity of companies, which form the basis of an economy's competitive advantages, have not improved significantly as a result (National Audit Office, 2010). Only one-fifth of the companies who received support from the state to increase their productivity noticed any significant impact on their productivity. According to the investigation the support has had hardly any impact on the appearance of new exporters. Moreover, enterprise support is criticised as inflexible and fragmented, benefiting only a few unrelated companies (whose integration with Estonia's economy is weak) and there has been no noticeable improvement in economic indicators or co-operation between companies.[20] Although, as noted, entering

Table 4.6. **Structure of national business support**

Support Group	The expected impact of particularly these indicators	Total volume in EEK billion	% of total
Grants for start-ups More sustained and rapid growth of enterprises (EAS 1)	• Survival • Number of employees	• Grants Amount: 0.124 • Number of grants: 1 098	1.7
Export subsidies Larger businesses Export capacity and internationalisation (EAS 2)	• Export turnover • Value added growth in staff	• Grants Amount: 0.356 • Number of grants: 541	5.0
Development grants Larger businesses D (EAS 3a)	• R&D and corporate investment in innovation growth • Development and exploration costs • Revenue growth (R&D institutions)	• Grants Amount: 1.60 • Number of grants: 473	22.3
Increasing productivity grants Higher productivity and corporate Value-added (EAS 3b)	• Export turnover • Value/added growth in staff for: • Investment in fixed assets growth	• Grants Amount: 0.950 • Number of grants: 4 795	13.2
Export guarantees (KredEx 1)	• Value added per employee • Turnover growth • Involving private sector investing in new machinery and equipment • Increase in export turnover	• Grants Amount: 2.49 • Number of grants: 1 779	34.8
Loans (KredEx 2)	• Value added per employee • Turnover growth • involving private sector • Investing in new machinery and equipment • increase in export turnover	• Grants Amount: 0.259 • Number of grants: 100***	3.6
Export insurance (KredEx 3)	• Value added per employee • Turnover growth • increase in export turnover	• Grants Amount: 1.39 • Number of grants: 1 240	19.3
Total amount		7.18 (EUR 460 million)	100.00

Source: National Audit Office (2010).

large export markets would call for co-operation between companies in a small country, Estonian companies still see no reason to devote resources to co-operation and support has not succeeded in changing this understanding.

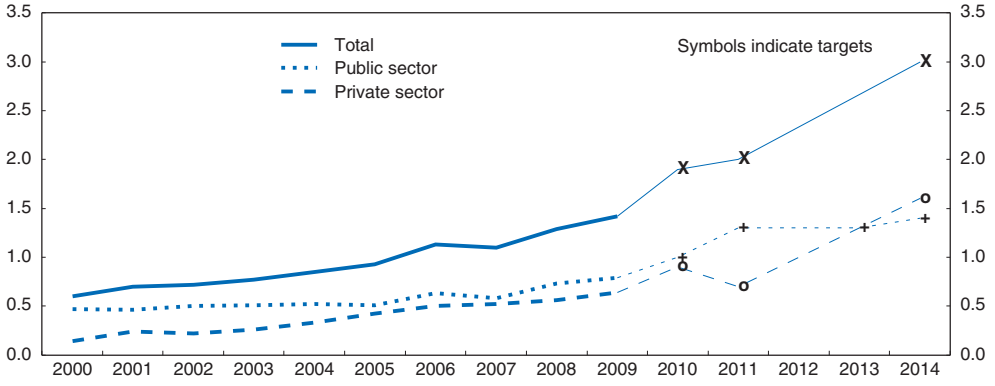
Policy diffuseness is probably compounded by the fact that policies are based on European Union funds (90% of the enterprise support in 2010 is money from the European Union), which for many years have focused on the distribution of money and reporting on effective percentages of use rather than trying to ascertain whether or not the distributed funds have created any permanent benefits (National Audit Office, 2010). What is missing is a means of integrating the various and currently separate business promotion measures in order to increase the competitive strength of Estonia's economy. As a result of the audit, the National Audit Office recommends a long-term action plan on a more thorough investigation into what obstacles firms face and how government support could help to overcome them.

Enhancing productivity through research and innovation

Research and innovation have been central to the Estonian goals of shifting its export basket away from a specialisation on labour- and resource-intensive fields towards more sophisticated sectors and achieving the strategic goals of doubling Estonian GDP and increasing productivity by 80% by 2014. In pursuit of these goals, *Knowledge-based Estonia'* set a target of raising spending on research and development from 1½ per cent of GDP in 2008 to just under 2% by 2010 and 3% by 2014 (Estonian Ministry of Education and Research, 2007).[21] Public sector R&D currently forms just over a half of all such spending and this is scheduled to remain the case in the earlier years of the plan, but by 2014 the private sector is supposed to be the major contributor (Figure 4.8). Three challenges arise: to channel budget funds into R&D efficiently; to ensure that the R&D undertaken feeds through to productivity gains in the enterprise sector, and to ensure that the enterprise sector itself supports the attainment of the overall strategy by increasing its own R&D inputs.

Figure 4.8. **R&D spending**

% of GDP



Note: The public sector is the non-profit sector and comprises education, government and private non-profit.

Source: Government of Estonia, *Estonian Research and Development and Innovation Strategy, 2007-13* and *Estonian Strategy for Competitiveness 2009-11*; Statistics Estonia.

StatLink http://dx.doi.org/10.1787/888932378701

The increase in R&D funding has occurred against the background of a number of structural deficiencies in the Estonian research framework, which have needed correction. Estonian researchers have been among the worst paid in the EU and the least productive in terms of peer-reviewed publications. The fact that Estonia's R&D infrastructure is significantly out of date has also been pointed out by various international assessors. Hence, both the real and human capital aspects need attention. Measures are being taken to enhance the quality and numbers of people working in research and development through increased pay and the modernisation of R&D infrastructure. Co-ordinated large-scale investments are being carried out over the 2008-15 period with the government planning to update old and create new facilities within research and development institutions with the help of European Union Structural Funds. In 2008, the MoEaC (Ministry of Economic Affairs and Communication) launched a programme providing project funding for more academic research projects in order to increase the competitiveness and size of innovation research community in Estonia. In a small country such as Estonia, prioritisation is of paramount importance and in order to ensure better

focus of financing R&D activities on the key areas presented in the research and development strategy, a programme of centres of excellence was implemented in 2001-07. Within the framework of this scheme, resources were allocated for centres of excellence on a competitive basis.

The gap between academia and industry needs to be bridged

Spending targets in themselves do not translate into achievement of productivity goals. R&D expenditures *per se* may not dovetail with private sector needs. In Estonia, the university system has been largely decoupled from the enterprise sector and the need is to achieve greater co-operation between them (Box 4.2). Weak co-operation between universities and business is partly explained by the fact that the research and development conducted at universities and institutions has not been sufficiently directed at practical applications, and partly by the structure of the Estonian economy, where a large proportion

Box 4.2. **Increasing the interaction between science and business**

The co-operation framework

The detailed structure and functioning of the Estonian research and development (R&D) system is provided by the Research and Development Organisation Act, which defines the set-up for interaction between universities, public research units and business. The amended Act is due for approval at the end of 2010. According to the Act, all ministries perform the research and development functions relevant to their fields of responsibility, including implementation of the national research and innovation policy, organising the financing of R&D institutions and co-ordinating international co-operation at state level.

There are two main national support systems for R&D and innovation in Estonia: the Archimedes Foundation and *Enterprise Estonia*. The objective of the Archimedes Foundation (established in 1997) is to promote and modernise Estonian education and science systems, reinforce co-operation with other spheres of society and co-ordinate and implement different EU programmes and projects in the field of training, education, research, technological development and innovation. *Enterprise Estonia* (established in 2000) provides financing, counselling, co-operation opportunities, and training for entrepreneurs, research and development institutions, the public sector and others.

To provide information and create links in the field of research and development the Estonian Research Information System (ETIS) has been established by the Estonian Ministry of Education and Research in co-operation with the Estonian Science Foundation, Scientific Competence Council, public universities, R&D institutions, R&D funding institutions and the Archimedes Foundation.

Co-ordination strategy

Estonia is moving towards a comprehensive policy, which will cover research, education and innovation. For example "National R&D programmes" implemented with the help of Structural Funds cover research, innovation and education, "Centres of Competence" programme research institutions and industry. "Centres of Excellence" and "Graduate school programmes" support the creation of synergies between research and education.

Competence Centres are implementing long-term and market oriented collaboration projects in co-operation with enterprises and research and development institutions. In developing economic clusters support will be provided for joint activities of enterprises and education institutions in the field of curricula development. The Competence Centre

Box 4.2. **Increasing the interaction between science and business** *(cont.)*

programme is the biggest programme with a budget of over EUR 65 million for the period 2009-15. Currently there are 7 centres in which around 500 students will be involved during that period.

National R&D programmes are prepared in co-operation with the partners (including research institutions, enterprises, etc.). The enterprises are financing separate measures and programmes in matching-cost principle. Currently the Ministry of Education and Research is preparing regulations for the R&D programmes (Energy technologies, ICT, Biotechnologies, Environmental technologies, Healthcare and health, Material technologies) which hopefully will be fully operational in 2011.

Co-ordination instruments

There are special measures to promote entrepreneurship studies and to train PhD students in co-operation with companies. The instruments include supporting the development of entrepreneurship and economic courses and modules for students of non-business studies and provision of funds to increase the accessibility of such courses. The graduate school programme supports building synergies between research and education. There is also a mobility scheme to pass doctoral courses in enterprise under the joint supervision of university and enterprise.

The larger Estonian Universities have created Technology Institutes and Technology Centres to support the co-operation with entrepreneurial sector. There is also a Spinno programme for supporting spin-off SMEs.

The Estonian Centres of Excellence programme is also one of the examples where the establishment of a Centre in certain areas should increase the research level, enhance innovative activities in this area, and increase the level of education at university. Since 2008 there are 7 Centres of Excellence (for the years 2008-15).

of enterprises operate in low value added niches and there is limited intramural research within enterprises. This gap between science and business is likely to continue for a number of years, and limits the scope and impact of R&D spending policies may have.

To bridge the gap between academia and business requires increasing the amount of ideas with practical application potential at universities and R&D institutions. The relevance of research policy in general is determined by the Ministry of Education and other ministries do not feel sufficiently involved in the process.[22] To increase enterprises' demand for research services, the state could contribute to the development of economic clusters and partnership networks that draw together enterprises, R&D and educational institutions, local governments and foreign partners. Broadening enterprises' market horizons and helping them to make contacts with international competitors and clients also strengthens their motivation to innovate and develop their products and services.

In the end, not all research will have practical value, particularly *ex ante*, so a question arises as to how much academic "blue sky" research a small country like Estonia can or should undertake. Estonia has not reached a stage where it can afford to fund much public research that does not focus on Estonia's own needs. Rather, given the necessarily small nature of Estonian R&D units, consideration should be given to further enhancing Estonian participation in respective EU Programmes or, despite understandable historical reservations, reviving research relations with the institutions of neighbouring states.

Promoting business sector R&D may require new instruments

In order to achieve the degree of R&D intensity set out in the strategy – and to create more direct links between R&D and productivity growth, the innovation capabilities of enterprises need to be raised in a broad way: encouraging SMEs to engage in product and process innovation, enhancing the links between domestic research and commercialisation, and generally creating an innovation-friendly society which will increase the capacity of the economy to absorb the technological advances spurred by globalisation. Business expenditure on R&D is currently well below the EU average and this is a major concern for Estonian RTDI policy. However, it is unclear why a 3% objective makes sense in an Estonian context. Indeed, R&D spending should be interpreted as an input (or cost) target rather than an end in itself. In the case of subsidies to private sector R&D, the impact should be assessed according to the results achieved. That is not currently the case. In the audit of R&D subsidies, noted above, the National Audit Office concluded that there is no evidence that subsidies have produced the impacts stated in policy documents: while at the micro level results are achieved, at a sectoral level there is little visible impact. This is perhaps unsurprising. While there is a case for global R&D support because of the externalities involved, the small size of the country makes it difficult for Estonia to create the critical masses needed to reap the benefits of specific R&D advances, while rapid structural change in industry makes it hard to "pick winners". That would seem to argue for concentrating resources on ensuring a general lifting of R&D and innovation and raising absorption capacities throughout the innovation system, rather than confining support to narrowly defined technology areas. At the very least, the implication is that the targets put forward in the strategy should not be pursued at all costs.

Currently, public support for private R&D is implemented via mainly EU funded grants. No tax credit scheme to stimulate R&D by firms exists. Direct support is provided to individual firms and their potential and *ex post* effects can be better measured than those from fiscal indirect support (OECD, 2002). On the one hand, direct support or subsidies allow the government to retain control over the type of R&D and to promote mission objectives (OECD, 2002). Moreover, they are neutral with respect to the business tax structure and they usually focus on projects with a higher social rate of return. Tax incentives, on the other hand, encourage the broadest range of firms to engage in R&D which is neutral with respect to the choice of industry and the nature of the firm, thereby being less costly to administer. There is some evidence that a mix of grants and tax concessions is more effective than sole reliance on either (Bérubé and Mohnen, 2007). Although it would be at odds with the simple and transparent Estonian tax system, such a scheme might be considered as an option for the future. The Dutch WBSO (research and development tax credit) might serve as a successful example. This programme reduces wage taxes and social insurance contributions. The condition is that these employees should work on technological R&D activities aimed at the development of products, processes and software that are new to the company. The WBSO also provides for extra incentives for high-tech start-ups to conduct R&D. The main advantages over a R&D subsidy are simplicity and lower implementation costs, while at the same time a tax reduction targeted towards R&D is more efficient in promoting R&D than a general tax cut for firms. Based on the growing experiences of other countries, it would be advisable to explore the feasibility of such a scheme.

Innovativeness is a strength and should be further encouraged

The standard separation of high- and low-tech industries focuses on average R&D intensity in individual sectors, such that the resulting definition mainly applies to total R&D in terms of end products. By this standard, the bulk of Estonian production is characterised as low tech. Low R&D inputs in this case also equate with poor R&D results in terms of patent applications. However, companies can still be high-tech in terms of processes and in that way innovative companies in traditional sectors can, in principle, contribute as much to a country's economic growth as a high-tech company. In that respect, Estonian small and medium sised enterprises have already shown a remarkable degree of innovativeness. The proportion of Estonian enterprises classed as innovative grew from 36% in 2000 to 48% in 2006, exceeding the European Union average (44%) (Eurostat). However, the main innovation activity is focused on obtaining and employing new equipment, which makes up roughly 87% of all innovation. Thus far, new technologies have contributed to raising production volumes (process innovation) and product and technology development been not prioritised.

Clearly, as the production costs of Estonian enterprises approach the level of developed countries, Estonia will have to rely to a greater extent on product improvement to bolster its international competitive position. If there is reason to believe that some of the present industries have no viable future due to the comparative advantages of other countries, then it would make sense to see if the competences found in those industries can be used for new activities, including high tech industries. However, the attempt to allocate the larger share of resources into creation of high tech sector should not be at expense of the support to the competitiveness of the much bigger part of so called non-high tech of the economy, including low-tech service sectors.

Matching educational attainment to labour market needs

Educational attainment is an important determinant of productivity growth. Among the imbalances which pose challenges for future development of Estonia are skill shortages. In OECD countries, investments in human capital are estimated to have added 0.5% to economic growth in the OECD countries during the 1990s and the operational rule of thumb is that the extension of the average duration of schooling by one year increases economic activity by 5%. Increased educational inputs are thus important in themselves. It may be assumed that the quality and composition of educational outputs may also be assumed to affect growth. Education is positively associated with entrepreneurial spirit, while the innovative capacity of a country derives in large measure from labour force skills. In Estonia, according to a study conducted in 2005, 70% of firms had difficulties finding skilled workers and craftsmen, and 50% encountered difficulties in recruiting mid-level specialists and technicians. At the same time, only 61% of entrepreneurs provided training for their employees. Finding managers was cited as a problem by two-fifths of medium-sised enterprises. In more than half of Estonian companies, none of the managers has a university degree in their profession, only 35% of managers have attended long-term management courses, and all managers in one company have attended long-term management courses only in 12% of companies.

From the above perspective, Estonia's education needs to focus on three issues: i) from the human capital accumulation viewpoint, the general level of education of the working age population needs to be raised to at least the level of secondary education and to embrace the entire population in lifelong learning, including the necessary language

competence; *ii*) from the "knowledge society" perspective, it will be important provide incentives for a sufficient supply of new-generation researchers and engineers and create attractive possibilities for their employment; and *iii*) greater effort is needed to match educational outputs to demands via a vibrant vocational education sector.

Investment in human capital needs to be stepped up

Apart from the emphasis on life-long learning, the EU focus is on functional literacy and the ratio of early school leavers. Estonian secondary education performance is generally above average, but it is moving towards some EU benchmarks too slowly:

- The EU objective is that 85% of young people should complete secondary education (compared with a level of 78.5% in 2008); Estonia is slowly improving from its base level of 79% in 2000 to 82% in 2008, but the pace is quite slow.
- During the 2000s, Estonia improved the rate for early school leavers from 15 to 14%, which is better than the EU average (15%), but the improvement is very slow compared to the EU target rate of 10%.
- Of the adult population in Europe, 24% have tertiary education and the objective is 40% by 2020; the Estonian figure is 34%.

Measures to encourage completion of secondary education and reduce the number of early school leavers should include more individually tailored support for student development, to help guarantee that participation leads to attainment. It would also imply separate curricula for basic schools and upper secondary schools, to stress the differences between the two stages of study. Subjects that are made compulsory should be chosen so as to ensure students can make adequate decisions regarding their future educational path and working life, including digital literacy, business competences (including entrepreneurial training) and language skills. The work of teachers will also change. Alongside the transfer of knowledge, teachers will assume an important role as supervisors, mentors and mediators. This requires, *inter alia* the development of teacher training programmes. Moreover, macro-economic and social criteria for assessing the effectiveness of education investments should be defined and scientifically grounded methods developed for assessing both the effectiveness of teachers' work and the effectiveness of education investments.

Education and the knowledge society

In adapting education to the needs of the knowledge society, the approaches and solutions in Estonia need to be brought into conformity with the general principles of the education policy of the European Union formulated at the Lisbon meeting of the Council of Europe in March 2004. This means that skills and knowledge need continuous adaptation in accordance with the changing needs of the economy. Specifically, this means ensuring a sufficient supply of scientific graduates and engineers. The fact that Estonia has been at a competitive disadvantage because of the low number of science and engineering graduates, together with the age pyramid of researchers skewed towards the older cohorts, has been seen as instrumental in creating the Estonian productivity gap described above (Table 4.7). The gap between the more advanced Scandinavian economies is particularly striking, and the shortage in the supply of high quality labour in Estonia is not likely to disappear, even with lower growth rates, given the demographics of higher education with low enrolment in science and engineering studies. In this context it should be explored whether the distribution of scholarships and free study places is adequate. Furthermore,

Table 4.7. **Students participating in tertiary education: Total and in science and technology**

	Total	Science and engineering	Science and engineering as % of total students
	% of total population aged 20-29		
EU27	28.6	7	24.5
Estonia	34	7.8	22.9
Sweden	37.6	9.6	25.5
Finland	46.7	17.1	36.6

Source: Eurostat.

consideration should be given to better aligning funding of free study places with the priorities needed for a knowledge based society. It is not obvious that the split in fully financed free study places and fully privately financed study places is optimal from the point of view of providing the right incentives to engage in higher education. Offering study places with mixed financing could be an option. In this case, loans with income contingent repayment schemes should be offered to cash-constrained students.

The number of science graduates will to some extent increase as the proportion of overall students in the population rises (the ratio of science graduates to total graduates is not much different from the EU average in Sweden). However, if education strategy is to fit in with the general development goals of Estonia, policies may need to focus on the composition of tertiary education output, as well as the quantity. The education paradigm presented in the education strategy *Learning Estonia* is an important starting point in that regard. It is based on the need for Estonian qualifications to be based on high, internationally recognised standards and on the creation of learning opportunities which are accessible to all and cover a broad range of curricula, based in educational institutions of different types and on different forms of study. In order to ascertain the need for skilled workers and top specialists by economic sectors, co-operation has to be built between public sector organisations, employers' organisations and research and development institutions.

Difficulties of reorganising public vocational education institutions

Vocational education has been a problem area for Estonia. The policy has been to expand vocational education and, following the Development Plan for the Estonian Vocational Education and Training System 2005-08, a number of changes have been made to the system of vocational education which should have made it more attractive. Curriculum development has improved and national curricula have been adopted; the legal environment of vocational education has been updated; and the organisation of in-service and retraining in vocational education institutions has been developed further. In order to make vocational education more flexible and popular, various types of study have been created in vocational education. However, there have been difficulties in implementing reforms and several of the basic goals have not been achieved (National Audit Office, 2009).[23] The share of students studying in post-basic school vocational education was targeted to rise to 38%, but through 2005-09 the number of students in vocational education fell by nearly 2 600, and the share remains at 30%. The student drop-out rate was meant to decline to 10%, but the actual rate is still nearer 20%, and that may be biased downwards since it takes no account of students' movement within the

academic year. The Professions Act has created a solid basis for vocational school graduates to obtain professional certificates upon graduation from the school, but the 70% goal set for the pass-rate of professional exams has not been met (the actual rate is under 30%), and the employment rate of vocational graduates has been only 66% compared with the goal of 80%. Nearly two-thirds of graduates of vocational education institutions enter the labour market without having any certificate of their professional qualifications.

According to a forecast of the Ministry of Education and Research, the number of students in vocational education will decrease over the next three years, while it is planned to invest substantially in modernisation of the study environment of vocational education institutions. With the number of basic school graduates about to decrease by nearly a third, vocational education institutions will be in a situation of tough competition, which calls for an additional analysis of whether the existing school network is sustainable. This analysis should be carried out jointly with an analysis of the network of general education schools. At the same time, the National Audit Office has made recommendations to the Minister of Education and Research: *i)* to analyse the sustainability of the network of vocational education institutions in the environment of the decreasing number of students; and *ii)* to develop a methodology for calculation of drop-outs, which takes into account students' movement within the academic year. The difficulties encountered by the vocational system will, however, take time and effort to overcome.

Box 4.3. **Recommendations on making the most of globalisation**

Maintaining the essentials of economic openness and fighting rent seeking establishment of entry barriers

- Maintain Estonia's position as a business-friendly regulatory environment and start a broad-based consultation process to find out why it does not deliver better results in terms of innovation led growth.
- Extend regulatory impact analysis also to existing regulation and regularly assess the appropriateness of regulatory impact.
- Ensure that the vigilance of competition policy enforcement is not reduced by the fact that the competition authority is now smaller.
- Contain the threats to competition emanating from public monopolies and local authority sectors.
- Regularly evaluate the need for maintaining publicly owned shares in companies operating on contestable markets.

Maintaining and enhancing an entrepreneurially friendly business environment

- Maintain the relatively light regulatory burden and extend the regulatory impact analysis to existing regulations and the *ex post* assessment of new regulatory interventions.
- The range of start-up and export promotion measures designed to propitiate enterprise growth and improve export performance should be assessed for their overall coherence and effect. Make current programmes more effective and targeted by better co-ordinating them behind the common goal of higher productivity. Explore whether providing international supply chains with ready-to-use business infrastructure, especially in areas with high unemployment, would give local firms better opportunities to enter such supply chains.
- Subsidize part of the fixed costs of co-operation and networking among small firms via the development of clusters in order to overcome the constraints of Estonia's small size.

Box 4.3. **Recommendations on making the most of globalisation** *(cont.)*

- Make adequate seed capital available by removing constraints for private venture capital investor and maintain a stable macro environment, to ensure financing is not an obstacle to firm development and innovation.
- Nurture the development of the service sectors in the context of the Foresight Action Plan strategies.

Promoting growth through high technology

- Do not adhere to numerical targets for R&D spending; projects should be pursued according to their intrinsic worth.
- Consider introducing tax incentives for R&D, the returns on which are easier to assess than subsidies.
- Switch resources to the promotion of non-high tech areas which can benefit from high-tech inputs.

Expanding and enhancing skills and human resources

- Complete the pedagogic and curricular reforms aimed at reducing drop-outs and enhancing secondary education completion.

Expanding and enhancing skills and human resources

- Complete the pedagogic and curricular reforms aimed at reducing drop-outs and enhancing secondary education completion.
- Financially encourage entry into scientific disciplines to foster the spread of 'knowledge-based' skills.
- Increase the integration of the vocational and mainstream education systems.
- Explore whether the distribution of scholarships and free study places is appropriate. Consider offering study places with mixed financing together with student loans with income contingent repayment schemes.

Notes

1. See Brixiova *et al.* (2010) for a description of the role of capital inflows for fuelling a debt financed domestic demand boom ahead of the great recession.
2. During the period 2000-06, the Estonian situation worsened compared to the EU15 average only in regard to the birth rate and migration.
3. Crisis episodes are often related to a fall in the level of potential GDP, which may be permanent or temporary depending on the sources of growth of the country (see for example Haugh *et al.*, 2009). The European Commission (2009) assumes that the cumulative fall in the EU8 as a result of the global crisis will average 5.9%.
4. For a description of the stylised facts of the extraordinary volatility in all Baltic economies see European Commission (2010).
5. In gravity models, trade is positively related to both countries economic size and development level and negatively to the distance between them, the latter determining transport costs as well as serving as a general proxy for communication and co-operation costs. Such models are based on classical theories relying on comparative advantage and relative factor endowment differences to explain the existence and structure of international trade; in these models inter-industry trade should be dominate and no attention is paid to the presence of increasing returns to scale, monopolistic competition and transportation costs which characterise new trade theories and which support the hypothesis that trade flows between countries with similar relative factor endowments are larger than trade flows between countries that differ considerably.

6. Primarily due to various forms of subcontracting, engineering products and machinery play the most important role in Estonian export, next come timber and various products made of timber (including paper, furniture, log houses). Estonia also exports metal products, chemical products and different light industry products (clothing, footwear). Food products and building materials are slightly less significant.
7. Laaser, Schrader and Heid (2008) argue for Poland, that the rapid integration into Western European production networks went hand in hand with a significant increase of intra-industry trade and became a driving force behind the modernisation of the Polish economy.
8. The positive contribution of FDI to home country productivity can occur either through the own-firm effect of increased productivity in companies with foreign owners, or through spill-over effects with increased productivity in non-FDI companies due to the presence of FDI in the same industry, or in downstream and upstream industries.
9. The study related to firm level panel data from the second part of the 1990s to 2001.
10. Masso and Vahter (2008) find that process innovation can be positively linked to productivity gains, but the impact depends on macroeconomic conditions In the 1998-2000 period only product innovation increased productivity whereas in 2002-04 only process innovation had a positive effect. In conditions of strong macro-economic growth companies can increase productivity without innovating because of growing market demand and by exploiting economies of scale.
11. This result is affected by the fact that multinationals include Scandinavian SMEs for which expansion to the neighbouring country of Estonia is the maximum extent of foreign market entry.
12. The activities in the service line are mostly wholesale of information and communication technology, software publishing, telecommunications, programming, consultation, data processing, web-hosting, website operations, and restoring computers and communication devices.
13. Spillovers from backward linkages (upstream suppliers) occur mainly in services sectors and the fact that earlier studies tended to focus on manufacturing firms can explain why the literature has been somewhat sceptical about the existence of FDI spillovers.
14. *Estonian SMEs export more than their EU counterparts*, 19 July 2010. During the years 2006-08 nearly 55% of small and medium-sised enterprises operating in Estonia were involved directly with exporting goods and services at least a certain part of the time, against an EU average was 25%.
15. Mostly Russian immigrants arriving after WW II are affected by this regulation, because their settlements are close to the Russian border. While Estonia's strategic concerns and security ambitions are understandable, the question arises whether such policy goals could be achieved with less damaging measures.
16. The Estonian Competition Authority is the responsible body for supervisory and regulatory activities in this area. In the beginning of 2008 the former Competition Board, the Energy Market Inspectorate, Railways Inspectorate and some of the Communications Board's functions were merged into the Estonian Competition Authority to strengthen supervision and make better use of existing resources.
17. The *IMD World Competitiveness Yearbook 2008* ranked Estonia 14th in transparency.
18. Lack of time and skills, as well as inadequate oversight was the main reason that implementation fell far short of expectations up to up to the mid 2000s).
19. *Ernst and Young European Attractiveness Survey 2009*, quoted on the Estonian Investment and Trade Agency website.
20. This investigation has generated considerable discussion and controversy in Estonia. The short observation period, the small number of enterprises involved, the extraordinary circumstances during the crisis may all have contributed to making it difficult to isolate the impact of support measures. Nevertheless, even if a larger variance needs to be attached to its results there is no reason to believe that the audit investigation is biased. Its findings should therefore taken into account as an incentive to engage in an expert discussion about how the effectiveness of enterprise support can be checked and what can be done to make support more effective.
21. This is the follow-up to "Knowledge-based Estonia: Estonian Research and Development Strategy 2002-2006", passed by Estonian parliament end of 2001.
22. This is in contradiction to the founding principles of Estonia's research policy established in the Organisation of Research and Development Act, which states that the Ministry of Education and Research and the Ministry of Economic Affairs and Communications are jointly responsible for

co-ordinating and guiding research and innovation policies but each ministry is responsible for financing and stimulating research in its respective field. This and joint initiatives with other ministries remain a major challenge.

23. The National Audit Office has consistently monitored developments in vocational education. The previous audit, "Ensuring Quality in Vocational Education", was carried out in 2005. Thereafter a number of changes were made in vocational education.

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Glossary

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ISO Code		ISO Code	Name of country	ISO Code	Name of country	ISO Code	Name of country
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BEL	Belgium	BEL	Belgium	AZE	Azerbaijan	AUT	Austria
BGR	Bulgaria	CYP	Cyprus	BLR	Belarus	BEL	Belgium
CYP	Cyprus	FIN	Finland	FIN	Finland	CAN	Canada
CZE	Czech Republic	FRA	France	KAZ	Kazakhstan	CHE	Switzerland
DNK	Denmark	DEU	Germany	KGZ	Kyrgyzstan	CZE	Czech Republic
EST	Estonia	GRC	Greece	LVA	Latvia	DEU	Germany
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