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**Country Report Estonia 2015**

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## EXECUTIVE SUMMARY

**Despite the economic weakness of its main trading partners, Estonia's economy has been markedly resilient.** After a sharp contraction in 2008 and 2009, real GDP is expected to grow by around 2.6% per year in 2015-16, to regain its pre-crisis level by 2016 despite a decrease in transit activity. Estonia's unemployment rate had almost quadrupled from 4.4% in 2007 to 16.7% in 2010, but has since fallen back to 7.6% in 2014 and is forecast to fall even further, partly due to a shrinking working-age population. Public debt is expected to remain at below 10% of GDP in the coming years. Inflation is currently very low, but excise and administrative price increases and strong wage growth are set to push it back to around 1.6% in 2016.

This Country Report assesses Estonia's economy against the background of the Commission's Annual Growth Survey which recommends three main pillars for the EU's economic and social policy in 2015: investment, structural reforms, and fiscal responsibility. In line with the Investment Plan for Europe, it also explores ways to maximise the impact of public resources and unlock private investment. **The main findings contained in this Country Report are:**

- **As regards taxation, the tax categories that are least detrimental to growth appear underused,** which leads to a partially inefficient use of labour and energy resources, especially as the tax wedge of low-income earners remains relatively high and energy efficiency remains low, including in transport.
- **Estonia's working-age population and labour force is rapidly shrinking** as a result of low birth rates, persistent emigration and health-related exits from the labour market. The latter are still increasing and partly related to the lack of jobs in specific regions and deficiencies in the current incapacity for work benefit scheme. Services at local government level still fall short in making active labour market policies effective and in addressing social challenges.
- **As regards investment in research and development, capital investment is mostly directed at construction and equipment, and is insufficiently at intellectual property**

**products.** The business sector is making progress in terms of increasing its research and development investment, but these investments are concentrated in a limited number of companies with insufficient levels of R&D results. Few companies collaborate with research institutions. Finally, long-term and structural unemployment remain relatively high in some regions where industrial activity is partly obsolete.

- **Estonia is unlikely to meet its energy efficiency target for 2020.** In particular, energy intensity in buildings, heating systems and transport remains high. Also, although the quality of transport infrastructure has improved, good intermodal and international connections remain essential for competitiveness, especially as transit trade is important for the Estonian economy. In parallel, the prevention of waste generation and support for reuse and recycling are still insufficient. Finally, cross-border connections for gas and electricity remain key to Estonia's energy security.

**Overall, Estonia has made some progress in addressing the country-specific recommendations issued by the Council in 2014.**

On issues relating to the labour market and social and education policy, some progress has been made to strengthen labour supply through various policies, notably the adoption of the work capacity reform, measures to improve incentives to work for low-income earners, and measures to increase the availability of childcare. The labour-market relevance of education and training systems has also been improved. As regards research, development and innovation, some work was carried out on intensifying prioritisation and specialisation of research and innovation systems, and on strengthening cooperation between businesses and academia. In the energy sector, some progress has been made to improve energy efficiency and security. There has been no progress on strengthening the budgetary framework and on better balancing local government revenue against devolved responsibilities.

The Country Report also reveals the policy challenges stemming from the analysis, namely:

- **The current multiannual expenditure rules appear insufficiently binding to make Estonia’s fiscal framework fully resilient in case of recurring expenditure pressures and to reduce uncertainties in medium-term planning.** Moreover, in order to allocate resources more efficiently and to reduce a favourable tax treatment of housing, a more extensive use of these taxes is a possibility.
- **As regards strengthening labour supply, the tax wedge for low-income earners remains relatively high, especially because the threshold of tax-exemption from the personal income tax remains low for a country with a flat taxation system.** Implementation of the work capacity reform package and an overhaul of prevention mechanisms will be crucial to reduce early exits from the labour market. As in previous years, the main challenges relate to improving the effectiveness of employment measures and the quality of social services at local level. In parallel, several characteristics of the current family policy framework prevent young parents from swiftly re-entering the labour market and contribute to a high gender pay gap. In the education sector, the participation level in vocational education and training and apprenticeships remains insufficient. Finally, despite a tertiary education attainment rate far above the EU average, there is a clear shortage of students in technology and science subjects.
- **As regards investment in research and development, there is progress on the availability of early-stage financing, but access by households and small and medium-sized companies to the equity market remains marginal.** The swift implementation of the updated innovation voucher scheme, the Applied Research Programme, the Enterprise Development Programme, as well as the strategies and action plans for the north-eastern and other regions could lead to promising developments.
- **As regards infrastructure and energy efficiency, the government’s intention to provide district heating systems, households and building owners with incentives to reduce losses and invest in energy efficiency**

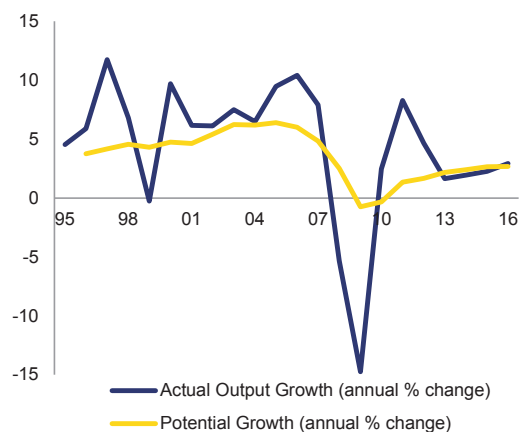
**bodes well for further positive developments in this area.** In parallel, the low energy efficiency of the transport system remains a problem and the absence of charges for road infrastructure use may hamper the sustainable funding of infrastructure upgrades and much needed intermodal connections. Estonia’s resource efficiency falls similarly short when it comes to preventing and reducing waste generation and increasing reuse and recycling. Finally, as regards cross-border connections, a number of major infrastructure developments in the electricity, gas and transport sectors are only in their incipient phase, which implies that effective links with the EU’s energy networks and Estonia’s energy security are still insufficient at this stage.

# 1. SCENE SETTER: ECONOMIC SITUATION AND OUTLOOK

**Despite the economic weakness of Estonia's main trading partners, Finland and Russia, its real GDP growth reached 1.9 % in 2014.**

Consumption remained the main driver of growth, while investment activity was affected by the negative confidence effects of heightened geopolitical tensions. Private consumption has benefitted from positive labour market developments, while lower inflation increased real income growth. Foreign trade showed an increase as exports of electronics rose in the second half of the year.

Graph 1.1: Estonia's actual and potential output growth



Source: European Commission

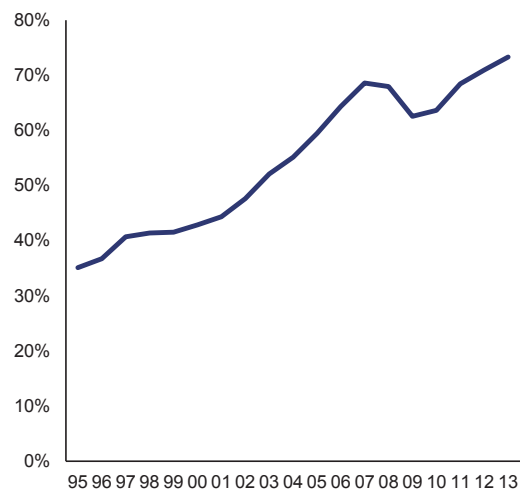
**In the coming years, GDP growth is set to gradually increase and to be more balanced due to the expected recovery of external demand.**

On the one hand, corporate investment is likely to suffer from lingering excess capacity and continued uncertainties. On the other, despite very low interest rates, private sector borrowing is expected to increase only moderately, as banks are expected to remain cautious due to the private sector's relatively high level of indebtedness.

**GDP growth is not expected to attain pre-boom rates** as the underlying growth potential decreased considerably during the crisis (see Graph 1.1). Estonia's growth potential is currently estimated at 2.5 % per year for 2013-16, instead of the 5.1 % registered per year on average between 1996 and 2005. Nevertheless, the economy continues to converge from 55 % of the EU average GDP per capita at the time of Estonia's accession to the EU

to approximately 75 % 10 years later, in 2014 (see Graph 1.2).

Graph 1.2: Estonia's GDP per capita in PPP-EU28 (ESA2010) as a % of EU-28's GDP



Source: European Commission

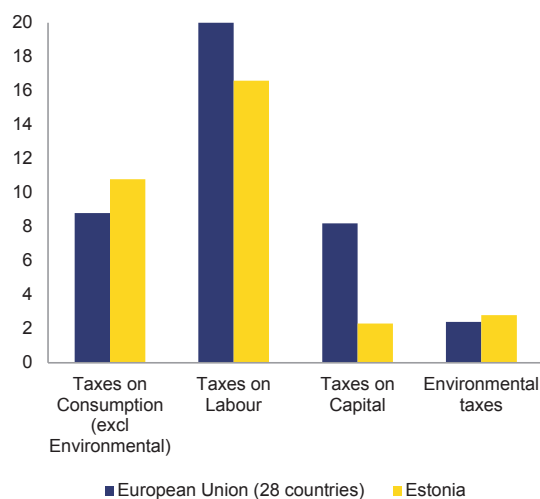
**Estonia is one of the best performing EU countries in terms of fiscal policy.** The debt-to-GDP ratio is expected to remain below 10 % in 2014-16, and the headline budget deficit is also low: at 0.4 % of GDP in 2014, and projected to increase slightly to -0.6 % in 2015 and 2016.

**Estonia's strengthened fiscal framework, with the structural balance rule as the main cornerstone, has become fully operational.** However, more binding multi-annual expenditure rules could be useful in addressing existing uncertainties in medium-term fiscal planning and in improving the macroeconomic stabilisation role of fiscal policies.

**Estonian taxes are relatively low with a growth-friendly mix** (see Graph 1.3), but the tax wedge of low-income earners remains high. Moreover, some tax categories that are least detrimental to growth, such as recurrent property taxes and environmental taxes, are not intensively used.



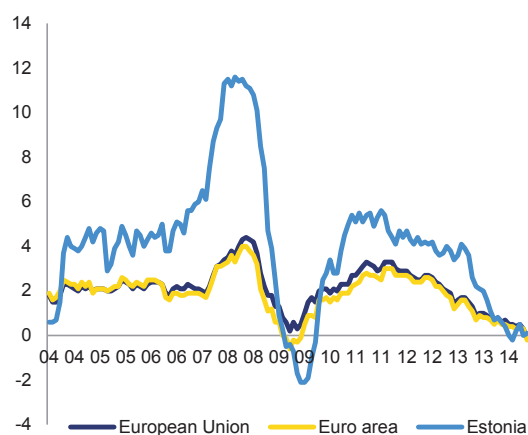
Graph 1.3: Taxes by function in % of GDP for the EU and Estonia (2012)



Source: European Commission

**Inflationary pressures have abated in recent quarters and are now at the level of the euro area** (see Graph 1.4). Energy products have been the main factor here, reflecting international price developments and easier access to cheaper regional energy networks for electricity. However, core inflation has remained above 1%. In 2016, further excise tax and administrative price increases, as well as continued high wage growth, are expected to push inflation back to around 1.6%.

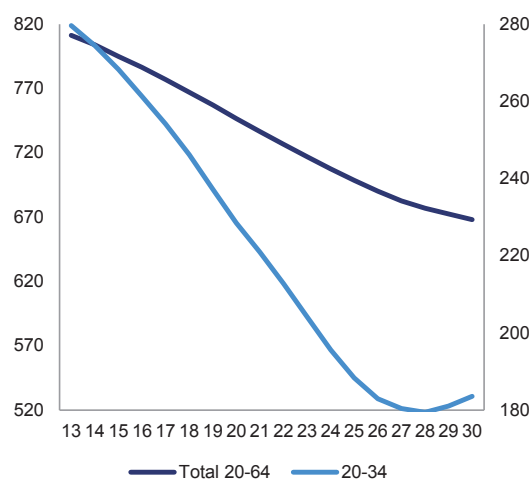
Graph 1.4: HICP (2005 = 100) in Estonia, EU and euro area - monthly data (annual rate of change)



Source: European Commission

**Labour supply remains constrained**, as low birth rates and persistent emigration are expected to shrink Estonia's working age population (see Graph 1.5). This is expected to reduce the unemployment rate from 8.3% in 2013 to below 7% in 2015 and to exert upward pressure on wages.

Graph 1.5: Estonia working-age population for age categories 20-64 (lhs) and 20-34 (rhs) - Projections for 2013-2030 (thousands)



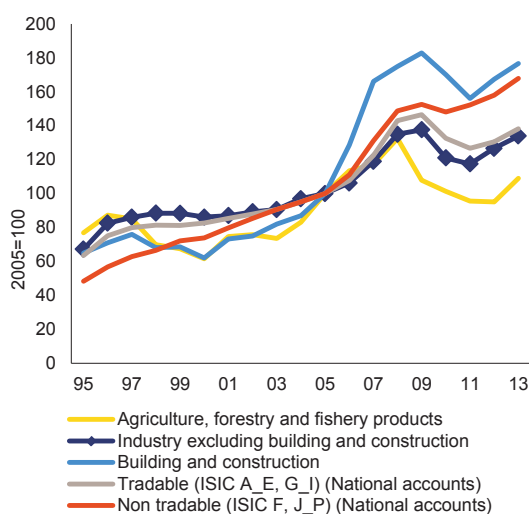
Source: European Commission

**As a result, sustained labour costs increases deserve close monitoring, especially in the view of the moderate growth prospects.** In 2013, nominal unit labour costs had increased by 9.6% over three years, exceeding the indicative ceiling of 9% established for euro area Member States in the Alert Mechanism Report. Strong wage growth (see Graph 1.6) may come at the cost of reduced external competitiveness, especially in traded services (transport, construction, accommodation services), which could exacerbate the impact of weak economic growth in neighbouring countries.

**Labour force participation in Estonia is above the EU average.** There is a continuing trend of people leaving the labour force for health reasons: around 10% of the total working-age population are currently assessed as partially or fully incapable to work (see Subsection 3.2). Also, the impact of parenthood on women's employment in Estonia seems to be high, at the fourth highest place in the EU. The situation contributes to Estonia having the highest gender pay gap in the

EU, though significant gender imbalance in certain occupations remains the *main* reason for this. Estonia stands out as a country where 75 % of high-skilled workers in elementary occupations (ISCO9)<sup>(1)</sup> are women.

Graph 1.6: Nominal unit wage costs by sector



Source: European Commission

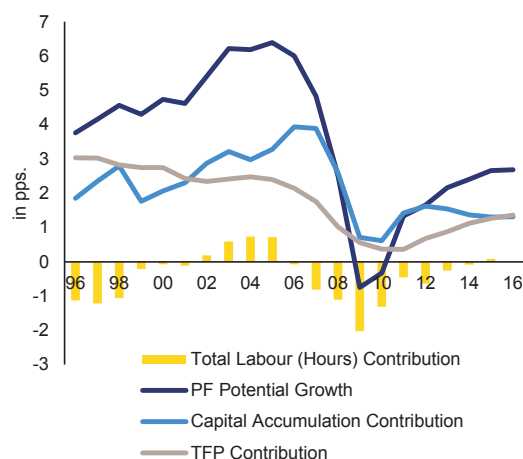
**The at-risk-of-poverty and social exclusion rate (AROE) is slightly below the EU average.** However, the at-risk-of-poverty rate (AROP) has risen to 18.6% and is now 2 pps. above the EU average. This may prevent Estonia from reaching its national poverty reduction target of 15 % by 2020 (see Subsection 3.2).

**In 2013, labour productivity per hours worked was still 40 % below the EU-27 average.<sup>(2)</sup>** Although education levels in Estonia appeared to be slightly above average <sup>(3)</sup>, the capital stock per worker was still relatively low at 83 % of the EU-27 average.<sup>(4)</sup> However, Estonia's situation is better than suggested by its stock levels: in flow terms, productivity has been the main driver of GDP growth in the country in recent years, in particular capital deepening (2.5 pps. out of an

(1) ISCO9 are elementary occupations in the International Standard Classification of Occupations.  
 (2) 47 % below the EU-15 average (LIME Council Working Group — European Commission calculations).  
 (3) Initial education level of the labour force was at 104 % both of the EU-27 and EU-15 averages in 2013 (LIME – European Commission calculations).  
 (4) 79 % of the EU-15 average.

average real GDP growth of 4.1 % over 2001-12 – see Graph 1.7).

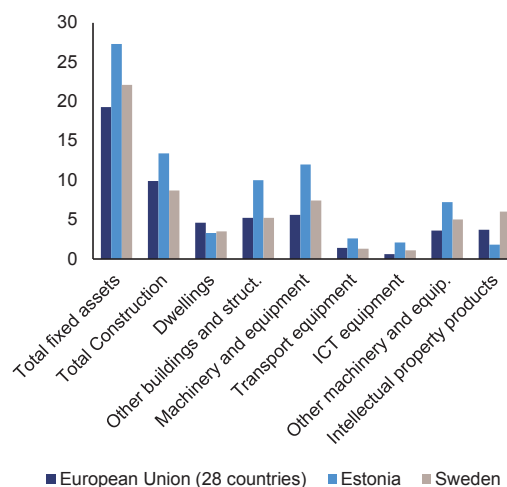
Graph 1.7: Contributions to Potential Output – Estonia



Source: European Commission

**Levels of credit to non-financial corporations in Estonia are growing in line with the economy** and as of 2012 the level of gross fixed capital formation as a share of GDP recovered to 26.1 %, still the highest in the EU even though down from levels above 30 % during the boom and pre-boom years (2002-08).

Graph 1.8: Gross fixed capital formation by asset type in the EU, Estonia and Sweden (2013)



Source: European Commission

**However, in recent years Estonia has not managed to sufficiently increase investment in high value-added sectors.** In 2013, Estonia's high level of capital formation and its structure, combined with productivity gains comparable with those in its Baltic neighbours, where the investment level is close to the EU average, suggests that Estonia is investing into capital-intensive production where value added is not very high (e.g. buildings). Moreover, the low level of investment in intellectual property products may suggest a partly inefficient allocation of funds (see Graph 1.8). This might prevent many high-skilled workers from finding work at a level requiring their skills.

**At 69 % of the EU-27 average in 2013 <sup>(5)</sup>, total factor productivity was the weakest component of Estonia's GDP.** Moreover, it is expected that the contribution of these productivity gains to GDP growth will be an average of 0.3 pps. per year lower over 2015-17 than in 2001-12 (1.6 pps. on average). Beyond the progressive completion of the convergence process, the lower total factor productivity contribution to growth points mainly to problems with the capacity to produce innovation and efficiency gains.

**Despite some progress in recent years, Estonia's innovation performance is still below the EU average <sup>(6)</sup>.** At 1.74 % in 2013, the overall level of R&D investment as a percentage of GDP has fallen below the EU-28 average of 2.02 %. However, the underlying trend has been positive if the one-off investment in oil shale research and technology in 2011 and 2012 is not taken into account (see Subsection 3.3). Estonia's challenges in terms of skills are the supply of technology and science graduates (see Subsection 3.2) and increasing the supply of transversal skills that are in high demand but lacking (language skills, entrepreneurship and initiative, creativity, ability to think critically, problem solving, work collaboratively, etc.).

**Estonia's performance in terms of using energy-efficient and clean transport technologies is comparable to that of its Baltic peers, but**

**relatively poor compared to other EU countries.**

At the same time, given the relatively high share of transport services in GDP, high-quality infrastructure and effective transport systems are vital for Estonia's competitiveness and economic growth.

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<sup>(5)</sup> 64 % of the EU-15 average (LIME — Commission calculations).

<sup>(6)</sup> Industrial Performance Scoreboard 2014.

Table 1.1: Key economic, financial and social indicators - Estonia

	2008	2009	2010	2011	2012	2013	Forecast		
							2014	2015	2016
Real GDP (y-o-y)	-5.3	-14.7	2.5	8.3	4.7	1.6	1.9	2.3	2.9
Private consumption (y-o-y)	-4.9	-15.3	-1.6	2.5	5.1	3.8	4.4	4.3	4.2
Public consumption (y-o-y)	4.5	-3.2	-0.4	1.7	3.3	2.8	1.3	1.6	1.3
Gross fixed capital formation (y-o-y)	-13.1	-36.7	-2.6	33.0	10.4	2.5	-1.0	1.5	3.7
Exports of goods and services (y-o-y)	0.9	-20.3	24.0	24.9	6.2	2.4	2.0	2.4	4.8
Imports of goods and services (y-o-y)	-6.2	-30.6	21.2	26.5	11.8	3.3	2.2	3.3	5.5
Output gap	5.3	-9.6	-7.0	-0.7	2.3	1.7	1.3	0.9	1.1
Contribution to GDP growth:									
Domestic demand (y-o-y)	-6.7	-20.3	-1.5	8.6	5.9	3.2	2.3	2.9	3.4
Inventories (y-o-y)	-3.2	-1.3	2.0	3.5	-1.3	-2.2	2.2	0.0	0.0
Net exports (y-o-y)	5.0	8.1	2.8	0.5	-4.2	-0.7	-0.1	-0.7	-0.5
Current account balance (% of GDP), balance of payments	-8.7	2.5	1.8	1.4	-2.5	-1.1	.	.	.
Trade balance (% of GDP), balance of payments	-3.9	5.0	6.4	5.8	1.0	1.4	.	.	.
Terms of trade of goods and services (y-o-y)	0.2	0.4	-1.9	-0.7	-0.6	1.4	1.1	0.6	0.2
Net international investment position (% of GDP)	-75.4	-80.1	-71.2	-55.6	-52.1	-47.1	.	.	.
Net external debt (% of GDP)	37.7*	34.1*	22.9*	5.0*	-1.96*	-6.32*	.	.	.
Gross external debt (% of GDP)	115.2	122.2	112.1	101.9	101.9	86.3*	.	.	.
Export performance vs advanced countries (% change over 5 years)	52.4	26.1	18.3	35.7	20.9	21.6	.	.	.
Export market share, goods and services (%)	0.1	0.1	0.1	0.1	0.1	0.1	.	.	.
Savings rate of households (net saving as percentage of net disposable income)	-4.1	4.7	4.2	5.2	4.3	4.1	.	.	.
Private credit flow, consolidated, (% of GDP)	10.5	-6.0	-7.6	-0.8	10.8	5.3	.	.	.
Private sector debt, consolidated (% of GDP)	136.7	153.3	140.5	124.9	125.8	119.4	.	.	.
Deflated house price index (y-o-y)	-16.2	-36.9	1.8	3.2	3.7	7.3	.	.	.
Residential investment (% of GDP)	4.3	3.1	2.7	2.8	3.0	3.3	.	.	.
Total financial sector liabilities, non-consolidated (y-o-y)	8.03*	-6.8	-2.6	0.3	8.3	7.8	.	.	.
Tier 1 ratio <sup>1</sup>	17.0	20.9	20.0	16.8	18.7	17.9	.	.	.
Overall solvency ratio <sup>2</sup>	13.2	15.8	16.3	19.4	23.2	23.1	.	.	.
Gross total doubtful and non-performing loans (% of total debt instruments and total loans and advances) <sup>2</sup>	2.3	8.9	9.3	4.5	3.0	1.9	.	.	.
Change in employment (number of people, y-o-y)	-0.1	-9.4	-4.3	6.2	2.2	0.9	-0.1	-0.2	-0.2
Unemployment rate	5.5	13.5	16.7	12.3	10.0	8.6	7.7	6.8	5.9
Long-term unemployment rate (% of active population)	1.7	3.7	7.6	7.1	5.5	3.8	.	.	.
Youth unemployment rate (% of active population in the same age group)	12.0	27.4	32.9	22.4	20.9	18.7	.	.	.
Activity rate (15-64 year-olds)	74.2	74.0	73.9	74.7	74.8	75.1	.	.	.
Young people not in employment, education or training (%)	8.7	14.5	14.0	11.6	12.2	11.3	.	.	.
People at risk of poverty or social exclusion (% of total population)	21.8	23.4	21.7	23.1	23.4	23.5	.	.	.
At-risk-of-poverty rate (% of total population)	19.5	19.7	15.8	17.5	17.5	18.6	.	.	.
Severe material deprivation rate (% of total population)	4.9	6.2	9.0	8.7	9.4	7.6	.	.	.
Number of people living in households with very low work-intensity (% of total population aged below 60)	5.3	5.6	9.0	10.0	9.1	8.4	.	.	.
GDP deflator (y-o-y)	7.4	0.4	1.5	3.0	2.7	4.5	2.3	2.1	2.5
Harmonised index of consumer prices (HICP) (y-o-y)	10.6	0.2	2.7	5.1	4.2	3.2	0.5	0.4	1.6
Nominal compensation per employee (y-o-y)	10.0	-2.8	2.5	0.8	6.5	7.2	5.6	4.9	5.1
Labour productivity (real, person employed, y-o-y)	-5.1	-5.1	7.8	1.6	3.0	0.4	.	.	.
Unit labour costs (ULC) (whole economy, v-o-v)	15.9	2.4	-4.9	-0.8	3.4	6.8	3.6	2.4	1.9
Real unit labour costs (y-o-y)	8.0	1.9	-6.4	-3.7	0.7	2.2	1.2	0.3	-0.6
REER <sup>3)</sup> (ULC, y-o-y)	11.4	1.3	-6.4	-2.5	-1.2	6.1	3.1	0.9	0.6
REER <sup>3)</sup> (HICP, y-o-y)	5.2	0.4	-2.7	1.3	-0.4	2.7	2.1	3.3	-0.7
General government balance (% of GDP)	.	.	0.2	1.0	-0.3	-0.5	-0.4	-0.6	-0.6
Structural budget balance (% of GDP)	.	.	0.3	-0.2	-0.3	-1.1	-0.7	-0.8	-1.0
General government gross debt (% of GDP)	.	.	6.5	6.0	9.7	10.1	9.8	9.6	9.5

1 Domestic banking groups and stand-alone banks.

2 Domestic banking groups and stand-alone banks, foreign-controlled (EU and non-EU) subsidiaries and branches.

3 Real effective exchange rate

(\*) Indicates BPM5 and/or ESA95

Source: European Commission, 2015 winter forecast; ECB

Table 1.2: The MIP scoreboard

		Thresholds	2008	2009	2010	2011	2012	2013
Current Account Balance (% of GDP)	3 year average	-4%/6%	-12.9	-7.1	-1.5	1.4	-0.1	-1.2
	p.m.: level year	-	-8.7	2.5	1.8	0.0	-2.1	-1.4
Net international investment position (% of GDP)		-35%	-75.4	-80.1	-71.2	-55.6	-52.2	-47.1
Real effective exchange rate (REER) (42 industrial countries - HICP deflator)	% change (3 years)	±5% & ±11%	12.6	13.6	4.6	-0.8	-3.6	3.1
	p.m.: % y-o-y change	-	6.5	2.0	-3.7	1.0	-0.8	2.9
Export Market shares	% change (5 years)	-6%	34.8	15.5	8.4	22.9	10.9	14.0
	p.m.: % y-o-y change	-	0.6	-7.2	2.5	14.8	1.0	3.4
Nominal unit labour costs (ULC)	% change (3 years)	9% & 12%	47.9	38.6	12.8	-3.4	-2.4	9.6
	p.m.: % y-o-y change	-	15.9	2.4	-4.9	-0.8	3.4	6.8
Deflated House Prices (% y-o-y change)		6%	-16.5	-37.1	2.1	3.1	3.7	7.3
Private Sector Credit Flow as % of GDP, consolidated		14%	7.6	-10.8	-7.6	-0.8	10.8	5.4
Private Sector Debt as % of GDP, consolidated		133%	143.9	154.6	140.5	124.9	125.8	119.4
General Government Sector Debt as % of GDP		60%	4.5	7.0	6.5	6.0	9.7	10.1
Unemployment Rate	3-year average	10%	5.3i	7.9i	11.9i	14.2	13.0	10.3
	p.m.: level year	-	5.5i	13.5	16.7	12.3	10.0	8.6
Total Financial Sector Liabilities (% y-o-y change)		16.5%	8.0	-11.2	-9.5	1.0	11.9	8.9

Flags: na: not available.

Note: Figures highlighted are the ones falling outside the threshold established by EC Alert Mechanism Report. For REER and ULC, the first threshold concerns Euro Area Member States and the second one non-Euro Area Member States.

(1) Figures in italics are according to the old standards (ESA95/BPM5).

(2) Export market shares data: the total world export is based on the 5th edition of the Balance of Payments Manual (BPM5).

(3) Unemployment rate i=Eurostat back-calculation to include Population Census 2011 results.

Source: European Commission

### Box 1.1: Economic surveillance process

The Commission's Annual Growth Survey, adopted in November 2014, started the 2015 European Semester, proposing that the EU pursue an integrated approach to economic policy built around three main pillars: boosting investment, accelerating structural reforms and pursuing responsible growth-friendly fiscal consolidation. The Annual Growth Survey also presented the process of streamlining the European Semester to increase the effectiveness of economic policy coordination at the EU level through greater accountability and by encouraging greater ownership by all actors.

This Country Report includes an assessment of progress towards the implementation of the 2014 Country-Specific Recommendations adopted by the Council in July 2014. The Country-Specific Recommendations for Estonia concerned public finances, the labour market, education, research, development and innovation, energy efficiency and security, and local government reform.

## 2. STRUCTURAL ISSUES

## 2.1. FISCAL FRAMEWORK AND TAXATION

**Estonia's overall public finance conditions are sound with a low public debt and general government deficits that are close to balanced.**

The already low long-term sustainability risks, as assessed in 2014, are further reduced by improved fiscal frameworks. Nevertheless, there are still uncertainties in the medium-term budgetary planning, due to the exclusive focus on the structural balance target.

**Estonia's tax burden is relatively low in EU comparison and has a growth-friendly structure, but the tax wedge of low-income earners remains high,** even after recent across-the-board reductions. Moreover, some tax categories that are considered least detrimental to growth, such as recurrent property taxes and environmental taxes, are not intensively used in Estonia.

### Fiscal framework

**The entry into force of the new State Budget Act on 23 March 2014 has strengthened Estonia's fiscal framework.** The Act sets out general requirements for the structural fiscal balance of the government as a whole and sets up an independent Fiscal Council attached to the Bank of Estonia.

**In 2014, Estonia received a recommendation to strengthen the budgetary framework** by introducing more binding multi-annual expenditure rules within the medium-term budgetary framework.

**In 2014, Estonia's strengthened fiscal framework has become fully operational.** According to the structural fiscal balance rule, which is the cornerstone of Estonia's medium-term fiscal planning, annual state budgets will be prepared in such a way that the government's structural budgetary position is at least in balance. The Fiscal Council, an advisory body charged with assessing Estonia's fiscal policy, was set up in May 2014. It is attached to the Bank of Estonia and consists of six members with good reputations and solid experience. The Council assesses the macroeconomic and fiscal forecasts of the Ministry of Finance and the extent to which the budget rules are followed, in accordance with the requirements of the State Budget Act and EU law. The newly established Fiscal Council is now fully operational

and has published opinions on 2013 fiscal outcome and endorsed the macroeconomic forecast underlying the 2015 Draft Budgetary Plan <sup>(7)</sup>.

**However, the binding nature of expenditure ceilings has not been increased nor have expenditure rules been introduced.** Although the State Budget Act stipulates that expenditure ceilings will be put in place in the medium-term state budget strategy for the next four years, the revision procedure is not regulated.

**Moreover, some uncertainties remain in the medium-term fiscal planning, in particular due to the focus on the structural balance target.** Cyclical position of a small open economy undergoing a fast transformation can be subject to fast changes, thus making it difficult to plan an appropriate level of expenditure and nominal balances on the basis of a structural balance target.<sup>(8)</sup> The planning might be made difficult also because of provisions in the State Budget Act allowing the transfer of a part of unused resources from an annual budget to the next budgetary year <sup>(9)</sup>.

**The lack of mechanisms or numerical rule for sustainable expenditure planning linked to longer-term targets, e.g. to the medium-term economic potential makes reducing the uncertainties** related to the estimates in a single year more difficult.

**In 2014, Estonia received a country-specific recommendation on balancing local government revenue against devolved responsibilities, where no progress has been identified.** Local governments are small, fragmented and the population density uneven across the country, implying that access to local services is not guaranteed in all municipalities and the provision of quality services at local level remains a challenge. Draft changes to the Equalisation Fund in order to reduce disincentives for municipalities

<sup>(7)</sup> Opinions of the Fiscal Council are published on its website: <http://www.eelarvenoukogu.ee/en>.

<sup>(8)</sup> The measurement risks are large, as also acknowledged by the Fiscal Council.

<sup>(9)</sup> For investment projects and the co-financing of projects partly financed by the EU, all unused amounts can be transferred. For regular spending items, up to 3 % of the expenditure can be transferred.

to attract enterprises or support job creation were announced in 2013, but have not been restated since then. However, local governments are running small deficits (0.5 % of GDP in 2013) and their debt level is low at 3.6 % of GDP. This is because financial performance of municipalities is regulated by the requirements in the Local Government Financial Management Act, which implies restrictions to operating results and debt level <sup>(10)</sup>.

### Taxation framework

**In 2014, Estonia's tax revenue constituted 32.7 % of GDP, well below the 39.8 % average for the EU-28** (see Graph 2.1.1). The Estonian tax system is relatively growth-friendly: 41.9% of revenue is collected from consumption taxes, which is considerably higher than the EU-28 average of 28.5 % <sup>(11)</sup>. However, some tax categories that are the least detrimental to growth are not intensively used, potentially leading to an inefficient allocation of resources.

**In order to improve tax compliance, Estonia introduced a number of measures in 2014.** During the first four months after a Labour Registry was set up (in July 2014), the official declaration of employees has increased by approximately 1.7 %, most of them in construction, retail and the restaurant sector and officially earning close to minimum wage <sup>(12)</sup>. On 1 November, a digital invoice data collection system was introduced to improve VAT collection <sup>(13)</sup>. Although the system will only become fully operational in June 2015, VAT revenue collection already increased significantly after the first months of partial implementation. Finally, in order to reduce tax exemptions and tax loopholes, the VAT-deductibility of company cars also used for private purposes was reduced by 50 % in December 2014.

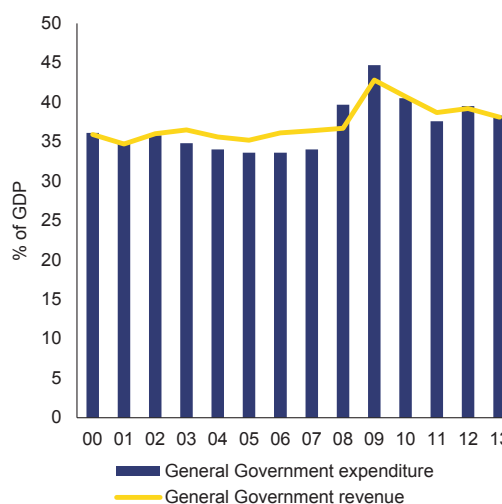
<sup>(10)</sup> As a general rule, local government's operating result (difference between the operating revenue and expenditure) is balance or surplus and the net debt (difference between debt obligations and liquid assets) may not exceed 60 % of the operating revenue.

<sup>(11)</sup> AMECO: [http://ec.europa.eu/economy\\_finance/ameco/user/serie/Res ultSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/Res ultSerie.cfm)

<sup>(12)</sup> About 9000 people, according to the tax office.

<sup>(13)</sup> Digital invoice data collection makes it possible to automatically compare data from buyers and sellers.

Graph 2.1.1: **General government revenue and expenditure**



Source: European Commission

**Consumption taxation in general is relatively high in Estonia** (see Graph 2.1.4). <sup>(14)</sup> However, in a context of rapid wage increases and in order to reduce health hazards, the government plans to further increase excise tax rates on alcohol and tobacco. <sup>(15)</sup>

**Some tax categories that are considered least detrimental to growth, such as inheritance taxes, recurrent property taxes and environmental taxes, are not intensively used in Estonia** (see Graph 2.1.2). Property tax revenue in Estonia was the second lowest in the EU in 2012 at 0.3 % of GDP and is expected to fall further in 2013, because a land-tax exemption has been introduced <sup>(16)</sup>. Furthermore, homeowners can still benefit from a personal income tax allowance for interest payments on a mortgage (up to EUR 1920 per person per year).

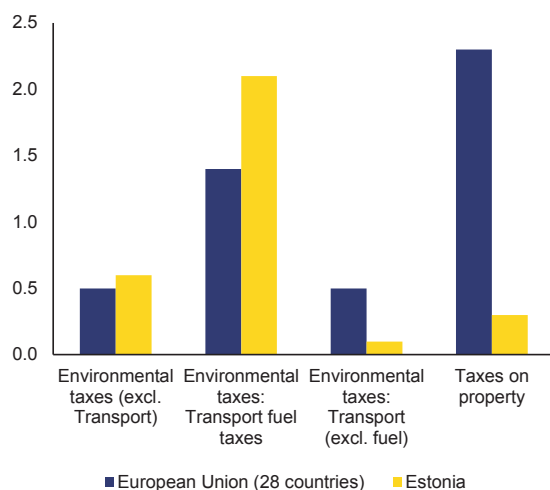
<sup>(14)</sup> In 2012, the implicit tax rate on consumption was 26.1 % in Estonia, the seventh highest in the EU (19.9 % on average).

<sup>(15)</sup> In 2015, the excise duty rate on alcohol was increased by 15 %. Further increases on alcohol & tobacco by 10 % and 5 % respectively per year have been decided for 2016-18.

<sup>(16)</sup> Plots up to 1500 m<sup>2</sup> in densely populated areas and up to 20000 m<sup>2</sup> in rural areas used as an individual's main residence are exempt from the land tax.



Graph 2.1.2: Selected taxes by function in % of GDP for the EU and Estonia (2012)



Source: European Commission

**As regards labour taxation, Estonia continues to pursue the policy of shifting tax away from labour.** In 2015, the personal income tax rate was reduced from 21 % to 20 %<sup>(17)</sup> and the monthly basic income tax allowance was increased by EUR 10, to EUR 154<sup>(18)</sup>. At the same time, the total unemployment insurance contribution rate paid by employers and employees was reduced by 0.6 pps. to 2.4 %. In total, the introduced changes will reduce the tax wedge of labour by 1.1 pps. across the board, costing about 0.6 % of GDP according to the calculations made by the authorities. The tax wedge of the average-income earner, at 39.9 %, was already below the EU average (43.5 %) in 2013 and has dropped further after the changes<sup>(19)</sup>. The tax wedge of low-income earners, at 37.6 %, was above the EU-28 average of 34.7 % and will remain higher than the EU average after the changes (see Graph 2.1.3)<sup>(20)</sup>.

<sup>(17)</sup> Along with the changes in the personal income tax rate, the corporate income tax rate was reduced from 21 % to 20 %.

<sup>(18)</sup> Using the EUROMOD-JRC interface shows that an increase in basic allowance from EUR 144 a month to EUR 154 would decrease total personal income tax revenue by 0.1 % of GDP, all other things being equal. Source: European Commission, Joint Research Centre, based on the EUROMOD model.

<sup>(19)</sup> Tax wedge for a single person, 100 % of average wage.

<sup>(20)</sup> Tax wedge for a single person, 50 % of average wage.

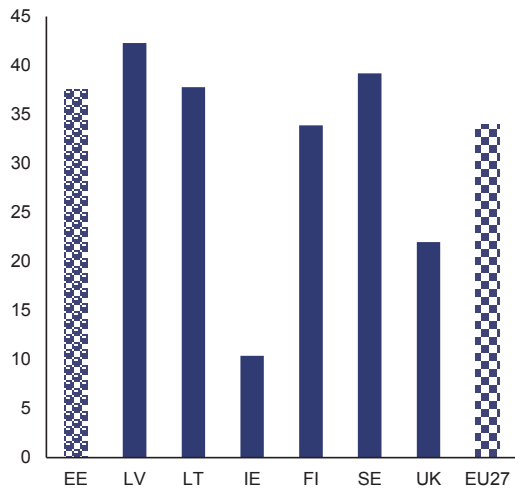
**The high labour tax wedge for low-income earners in Estonia results from a low basic income tax allowance in combination with flat income tax and social security contribution rates.** In particular, at EUR 154 a month, the current basic allowance falls short of the minimum income required for a single person's subsistence, which is estimated at EUR 205 by Statistics Estonia (2013). In recent years the basic allowance has lagged behind the evolution of wages, raising the tax wedge on low-income earners even further (see also subsection 3.2). According to the IMF, a high labour tax wedge on low-income earners is a major driver of structural unemployment<sup>(21)</sup>. Therefore, lowering the tax wedge on low-income earners could help reduce the structural unemployment and, furthermore, dampen the negative labour supply effect from emigration and health-related exits. Finally, already apparent labour market pressures originating from the shrinking labour force<sup>(22)</sup> can be addressed via labour taxation measures focussing on low-income earners, in particular due to the higher sensitivity of this income group to changes in the tax wedge.<sup>(23)</sup>

<sup>(21)</sup> IMF (2014), Baltic Cluster Report, No 14/117, Washington, or IMF (2014), Republic of Estonia, 2014 Article IV Consultation — Staff Report, No 14/112. See also OECD (2015) Economic Surveys, Estonia, Paris.

<sup>(22)</sup> According to Statistics Estonia, Estonia's working age population (age group 20-64) is expected to decline by 14 % (119 thousand persons) by 2030.

<sup>(23)</sup> Staehr, K. (2008), Estimates of Employment and Welfare Effects of Personal Labour Income Taxation in a Flat-Tax Country: The case of Estonia, Working Paper Series, 3/2008, Bank of Estonia, Tallinn, 2008.

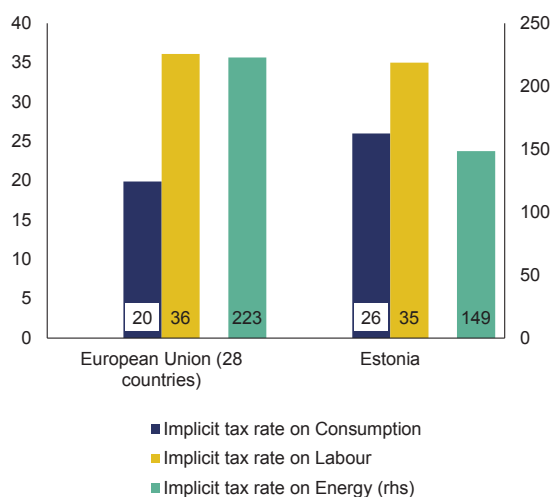
Graph 2.1.3: Tax wedges for a single worker with 50% of average earnings, no children



Source: European Commission – Tax and Benefits Database

Overall, the changes introduced by Estonia go in the right direction but they do not target low-income earners, making them relatively costly. This means that the country has only made some progress on responding to the recommendation to improve incentives to work for low-income earners.

Graph 2.1.4: Implicit tax rates in Estonia and the European Union (2012)



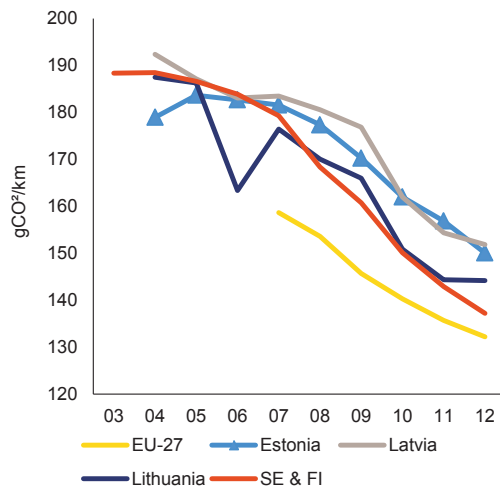
Source: European Commission

As regards environmental taxation, the implicit tax rate on energy is relatively low in Estonia (148.5 % in 2012) compared with the EU average

(222.8 %) (see Graph 2.1.4). In parallel, environmental taxation (2.8 % of GDP) is above the EU-28 average (2.4 % of GDP), with the main contributor being excise duties on fuel, reflecting the economy’s low energy-efficiency. In response to the recommendation to increase environmental incentives and to raise additional revenue, Estonia has increased energy taxation by 0.2 % of GDP in 2015. The use of preferentially taxed diesel fuel was limited and is now only available in the agriculture and fisheries sector. In parallel, excise duty rates for natural gas were increased by 20 % and further increases of 20 % per year are envisaged for 2016-17.

The CO<sub>2</sub> emissions of new cars in Estonia remain high<sup>(24)</sup> in comparison with levels in other EU Member States (see Graph 2.1.5), while the average age of passenger car fleets is still almost double of the EU average<sup>(25)</sup>. Also, there is no charge for road infrastructure use.

Graph 2.1.5: Average CO<sub>2</sub> emissions from new passenger cars by region in 2000-12



Source: European Environment Agency (2013)

These changes increase environmental incentives in the economy, but are likely to have a marginal effect on the transport sector. Therefore, it can be said that Estonia has made

<sup>(24)</sup> See Lamine, B. Löhmuste, E., (2014), Do the Baltic States need to tax passenger cars more, Country Focus, Volume 12, Issue 11, ECFIN, European Commission, Brussels, November 2014.

<sup>(25)</sup> Taxation trends in the EU (Eurostat, 2014).

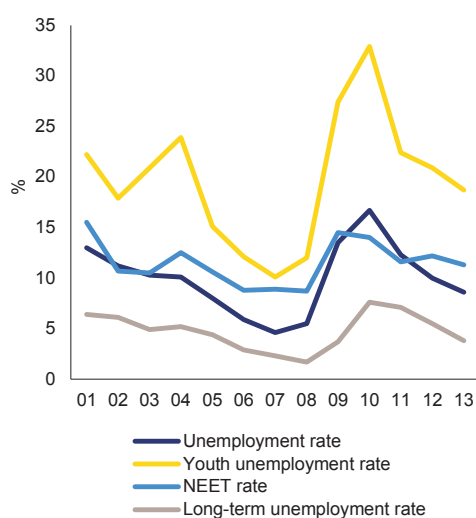
limited progress on responding to the recommendation to improve environmental incentives in the transport sector.

**Overall, Estonia has made some progress on improving its tax system.** However, challenges persist in labour, transport and housing taxation. In particular, the tax wedge of low-income earners remains high in EU comparison, restraining labour supply and supporting emigration. In parallel, the economy's low energy-efficiency, in particular in transport, is still a concern. Low housing taxation is combined with a deductibility of interest payments on mortgages.

## 2.2. LABOUR MARKET, SOCIAL POLICIES AND EDUCATION

**General labour market indicators continued to improve with the employment rate of the population aged 20-64 reaching 74.5 %** in the third quarter of 2014 (see Graph 2.2.1). During the same period, the unemployment rate dropped to 7.6 %, the lowest level since 2009<sup>(26)</sup>. The proportion of long-term unemployed is well below the EU-28 average.

Graph 2.2.1: **The labour market in Estonia: unemployment rate, youth unemployment rate, not in employment education or training (NEET) rate, long-term unemployment rate**



Source: European Commission

**However, the overall positive labour market developments should be seen against the backdrop of shrinking working age population and shrinking labour force**, which are still the main medium-to-long-term challenge for Estonia. This is a consequence of the ageing population, people leaving the labour force for health reasons, and emigration. As a result, the Estonian economy is already experiencing labour shortages in some sectors and, unless emigration and activity rates can be improved in a sustainable way, the labour

<sup>(26)</sup> Unemployment has decreased for all age groups, for both genders and for Estonians and non-Estonians. The activity rate (15-74) has been increasing since the crisis, as has the employment of older workers. The workforce is shrinking, but there is ample job creation, which reduces unemployment. The labour market does not show signs of segmentation.

force is expected to shrink by one fifth by 2040<sup>(27)</sup>.

**In 2013 the productivity per person employed in Estonia was still markedly below the EU level** (70% of the EU level). The productivity per hours worked was even lower (see section 1. Scene setter).

### Strengthening labour supply

**The challenge of the shrinking active population raises the issue of certain subgroups of the population participating in the labour market. This includes low-income earners, people with disabilities, and mothers with young children.**

#### *Incentives to work for low-income earners*

**Incentives to work have been a challenge for Estonia, notably due to the tax wedge of low-income earners**, which is high as compared with other EU countries. This may reduce work incentives and hamper job creation for low-skilled workers, as well as encourage informal employment<sup>(28)</sup>. Moreover, until 2013, the minimum wage growth also lagged somewhat behind the average wage growth. As a result, Estonia is one of the few EU countries where a full-time worker earning the minimum wage still has an income lower than the relative poverty line.

**As of January 2015, a number of measures have come into force. They aim to improve work incentives**, including lowering the unemployment insurance contribution rate from 3 % to 2.4 %, increasing the basic personal income tax allowance by EUR 10 per month (6.9 %) and further increasing the minimum wage by 9.9 % after a prior 10 % increase in 2014.<sup>(29)</sup> However, the increase in the basic personal income tax allowance is relatively small as compared to wage increases witnessed over recent years, so the tax

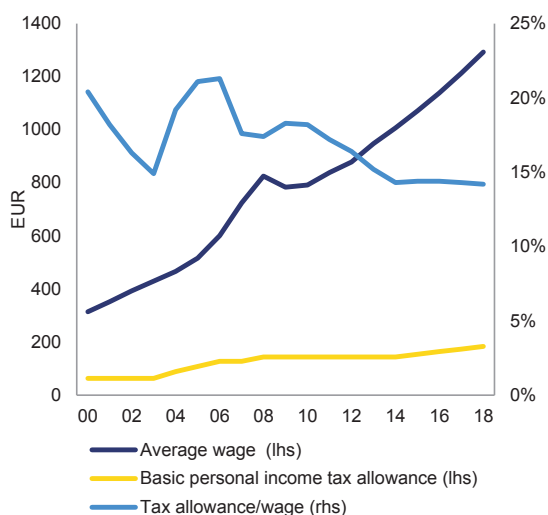
<sup>(27)</sup> In 2013, the population growth was still negative, decreasing by 2.7 %.

<sup>(28)</sup> See footnote (21) under subsection 3.1.

<sup>(29)</sup> According to the Bank of Estonia, for an average salary earner these changes will increase net labour income by around 2 %.

wedge of low-income earners is only marginally reduced (see Graph 2.2.2) <sup>(30)</sup>.

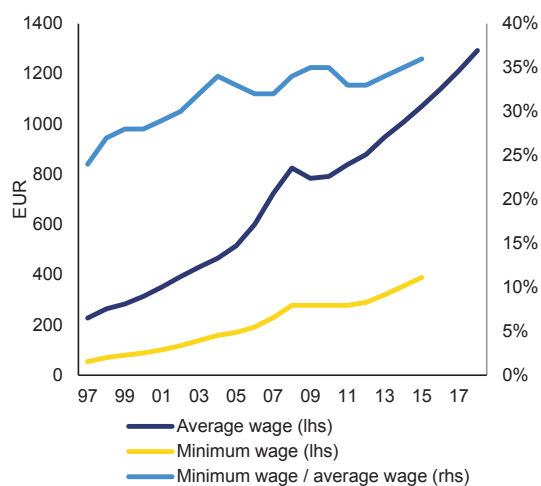
Graph 2.2.2: Evolution of the basic allowance over the years 2000-18



Source: European Commission (2014)

The significant increases in the minimum wage should be seen against the backdrop of a low minimum wage starting level compared to average gross monthly earnings (minimum wage of EUR 320 and average wage of EUR 949 in 2013; see Graph 2.2.3).

Graph 2.2.3: Evolution of the statutory minimum wage in Estonia (2008-15)



Source: European Commission (2014)

With two increases in minimum wage in 2014 and 2015, each of about 10 %, Estonia has made some progress in response to the recommendation to improve incentives to work for low-income earners. However, the tax wedge of low-income earners is still relatively high and the basic personal income tax allowance remains low for a country with a flat tax system, especially in a context of rapid wage increases.

#### Work capacity reform

Around 100 000 people of working age, 10 % of the total working age population, are currently assessed as partially or fully incapable for work and receive incapacity pensions (see Graph 2.2.4). Their number continues to rise. Less than half of incapacity-for-work pensioners work and more than half of them also receive benefits for disability, the uptake of which is also increasing, with many recipients belonging to older age groups. A contributing factor to this has been the tightening of the early retirement scheme <sup>(31)</sup>.

<sup>(30)</sup> Economic rationale would suggest that flat tax systems apply higher, not lower, tax-exemption allowances than progressive tax rate systems (see Duran *et al.*, (2015), 'Emigration of the less-skilled: the role of incentives to work in Estonia', Country Focus (forthcoming).

<sup>(31)</sup> The higher uptake of disability pensions in regions plagued by structural unemployment points at disability as an alternative pathway to early retirement.

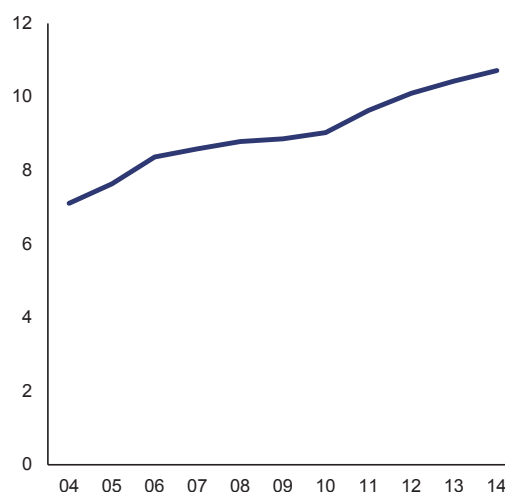
**In November 2014, the Estonian Parliament adopted the ‘work-capacity reform package’** in response to the growing need to increase the supply of labour and guarantee sustainable financing<sup>(32)</sup>. The reform package will introduce a qualitative shift from evaluating incapacity for work to assessing the individual person’s actual ability to work. It will also prioritise preventing the loss of work ability, motivate people to participate in social life, and support employers in adapting workplaces. The reform will result in raising the traditionally low expenditure on active labour market policies<sup>(33)</sup><sup>(34)</sup>. The modified Social Welfare Act will regulate rehabilitation and vocational services of the work capacity package. The Estonian authorities expect that the reform will result in 50 % of people with partial work capacity being employed and 10-15 % of current pension recipients leaving the scheme by 2021.

<sup>(32)</sup> The reform package that will be implemented from January 2016 consists of: the Work Capacity Benefit Act, the amendments to the Social Welfare Act and the Labour Market Services and Benefits Act, and other acts and implementing regulations.

<sup>(33)</sup> With amounts below the EU average per person as well as a percentage of GDP. However, expenditure on active labour market policies would double between 2015 and 2020 as would the number of case handlers at the Unemployment Insurance Fund.

<sup>(34)</sup> The Estonian Unemployment Insurance Fund will also become responsible for passive measures, and will introduce new active labour market policy measures for people with limited work ability: counselling and training programmes for employers, mobile counselling for young people with special needs, peer counselling, work-related rehabilitation, travel-to-work allowance, and others.

Graph 2.2.4: Proportion of people with disabilities, in % of total population



Source: Statistics Estonia

**The increasing number of people receiving an incapacity pension also raises the issue of prevention through occupational health and safety.**<sup>(35)</sup> In November 2014, the government discussed the main principles of a work accident and occupational disease insurance scheme. Future activities are expected to concentrate on strengthening prevention, compensation and rehabilitation, and on introducing best practices from systems in other countries.

#### *The Youth Guarantee*

**The unemployment rate of young people (15-24) in autumn 2014 was at 13.4 %.** Many of the elements linked to the delivery of a Youth Guarantee, such as individual action plans provided by the Unemployment Insurance Fund, are already in place in Estonia. A remaining challenge is the identification and activation of non-registered young who are not in employment, education or training (NEETs) in order to ensure that they receive a quality job offer in less than four months. The programmes for the Youth

<sup>(35)</sup> According to the latest population census around 30% of people reported a chronic disease or a disability and for 28% a disease-related condition disturbing their everyday life to some degree.

Guarantee have been adopted (e.g. wage subsidies). Estonia will implement them from this year on to alleviate problems that have not been addressed by existing measures. It will include activities to reach out to those who are not in employment, education or training and not registered with the Unemployment Insurance Fund and not targeted by existing outreach programmes, and will involve education institutions.

#### *Childcare and female labour market participation*

**Estonia has a high rate of single parents, the highest gender pay gap in the EU (30 % in 2012, unadjusted), and a high impact of parenthood on women's employment:** in 2013, the difference between employment rates (age group 20-49) of women without and with children was 25.8 pps, above an EU average of 9.5 pps.<sup>(36)</sup> Long parental leaves lasting up to three years, and mainly used by mothers, combined with the high replacement rate of parental benefits, contribute to a high gender segmentation, both in occupations and economic sectors.<sup>(37)</sup>

**The provision of childcare services is expected to improve** from 2015, as the Pre-School Child Care Institutions Act adopted in November 2014 gives local governments greater flexibility to offer childcare services for children aged 1.5-3. 2000 additional nursery and childcare places are expected to be created with ERDF funding in the urban areas of Tallinn, Tartu and Pärnu by 2023. However, limited availability of childcare possibilities for children under 1.5 years is likely to remain an obstacle.

**In parallel, Estonia has taken steps in raising the adequacy of the family benefits from 2015:** the universal child allowance was raised, as well as the level of the needs-based child benefit and the child's subsistence level. As a result of latest steps the absolute poverty rate is expected to drop by 2.6

<sup>(36)</sup> Although female participation at the labour market in general and return to the labour market after the child bearing age are among the highest in the EU : the employment rate of 55-64 year old women was in 2013 the second highest in the EU-28.

<sup>(37)</sup> The second and third highest in the EU with respectively 30.7 % and 24.6 % in 2013.

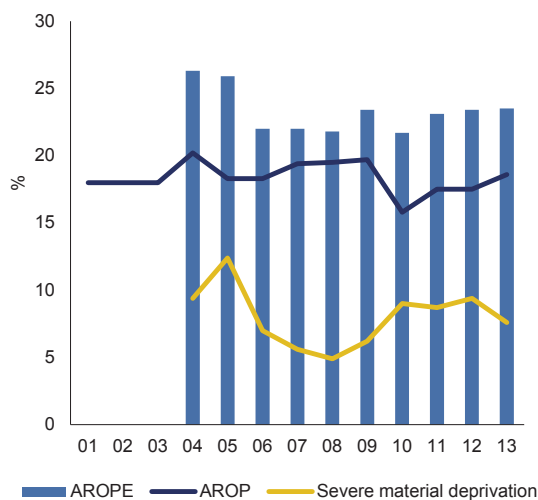
pps with the largest effect on children of 3-6 years.<sup>(38)</sup>

## Social policies

### *Poverty and social exclusion*

**The proportion of the population that is at risk of poverty and social exclusion (AROPE) in Estonia was broadly stable at 23.5 % in 2013 and slightly below the EU average** (see Graph 2.2.5). Living standards in general seem to be improving: the proportion of people living in jobless households decreased to 8.4 % and the proportion of people severely materially deprived decreased to 7.6 %; both figures are below the EU average.

Graph 2.2.5: Poverty indicators: at risk of poverty or exclusion (AROPE), at risk of poverty (AROP), severe material deprivation, people living in low work intensity households



Source: European Commission – Eurostat

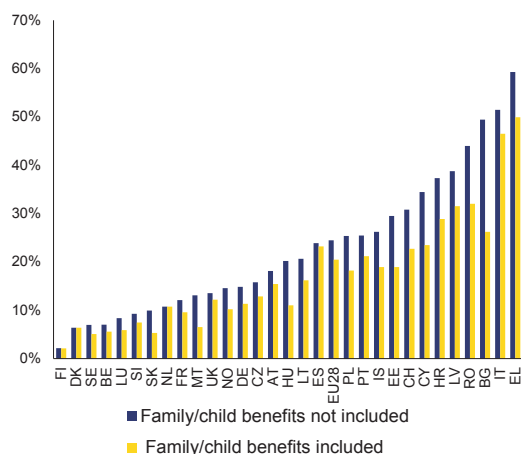
**However, after two years of stagnation, the at-risk-of-poverty rate (AROP) rose to 18.6 % in 2013, 2 pps. above the EU average.** So far, Estonia has made little progress on achieving its national at-risk-of-poverty target of 15 %. This relates mainly to a rapid increase of the at-risk-of-poverty rate among people above 65 years of age

<sup>(38)</sup> Võrk, Andres; Paulus, Alari; Leppik, Cenely (2014). Analysis of the effects of family benefits and financing of primary education and child care. Tallinn: Poliitikauuringute Keskus Praxis

(from 21.8 % in 2012 to 28 % in 2013, against an EU average of 18.3 %), with a remarkable difference between elderly women and men (33.5 % vs 16.7 %). The at-risk-of-poverty rate is particularly high for single parents. In general, the at-risk-of-poverty is closely linked to educational attainment (for low-skilled people<sup>(39)</sup> the at-risk-of-poverty rate stood at 29 % vs 23.7 % in the EU) and employment status (54.8 % of the unemployed are at risk of poverty, compared with 46.5 % in the EU). The situation of unemployed people relates to the low coverage and adequacy of unemployment benefits despite continuous increases<sup>(40)</sup>; the subsistence benefit fails to cover the cost of the minimum food basket.

**The coverage of social benefits in Estonia is above EU average when family and child benefits are taken into account** (see Graph 2.2.6). However, the impact of social transfers on reducing poverty is low and between 2010 and 2013 decreased further by nearly 10 pps. (from 36.5 % to 26.8 %, again an EU average of 35.3 %), while expenditure on social protection, at 15.4 % of GDP in 2012, was the second lowest in the EU.

Graph 2.2.6: **Non-coverage of social benefits in 2013**



**Source:** European Commission

<sup>(39)</sup> 0-2 level in International Standard Classification of Education (ISCED).

<sup>(40)</sup> The unemployment allowance rate increased from EUR 112 to EUR 124 per month as of 1 January 2015. The minimum level of the unemployment insurance benefit increased to EUR 183 per month (EUR 165 euros in 2014).

**Estonia is developing strategic framework aimed at modernising social policy.** In October 2014, the Ministry of Social Affairs launched the preparation of the Development Plan for Social Protection, Inclusion and Equal Opportunities 2016-23. The strategy, which is expected to be submitted to the government in November 2015, should address concerns such as making social systems more efficient, increasing their coverage and adequacy, increasing participation in the labour market, and guaranteeing access to services at local level. At the same time investing in activation policies, skills and education is an important prerequisite for tackling and preventing poverty in Estonia.

*Providing quality services at local level*

**Due to the fragmented structure of the municipalities, public services provided by local governments are not equally accessible and not of sufficient quality.** The varying level of local services can be explained by the lack of quality standards (i.e. minimum requirements), lack of a competent workforce at municipal level and lack of monitoring systems.

**Insufficient social services have a direct negative impact on activation measures.** This challenge is particularly important in the context of the work capacity reform which relies on the availability of social services at local level. Furthermore, the fragmentation and lack of clarity as to the division of tasks between the central and local levels may make it difficult to deliver local services in an integrated way.

**The revised Implementation Plan for the OECD Public Governance Review, adopted in December 2014, is expected to develop cooperation and coordination mechanisms** and bolster the state’s institutional organisation, as well as to improve organisations’ management capacity.

**In its operational programme to implement the European structural and investment (ESI) funds, Estonia has committed to developing minimum standards for social services at local level and to establishing service areas that allow economies of scale.** Minimum quality requirements will be established in the modified Social Welfare Act due to be submitted to the government in February 2015. To improve the



quality of social services, the Ministry of Social Affairs has started to prepare a strategic framework document, the Development Plan for Social Protection, Inclusion and Protection and Equal Opportunities 2016-23, to be adopted in the first quarter of 2016. The ESI funds will help significantly modernise the service delivery system as well as services themselves. The Regional Development Strategy for 2014-20 was endorsed by the government in March 2014, and aims to create functional centres for delivering high-quality services.

**While it is not a statutory obligation of the National Unemployment Insurance Fund to support local services, it does so** under cooperation agreements with municipalities to improve the employability of long-term unemployed and people with disabilities. These initiatives, although not large in scale, help to compensate for the lack of local services at municipal level.

**Overall, Estonia has made limited progress on improving the efficiency of local governments and ensuring the provision of quality public services at local level,** especially social services complementing activation measures. Progress on minimum quality requirements for local social services in the modified Social Welfare Act remained insufficient.

#### Increasing the relevance of skills and education

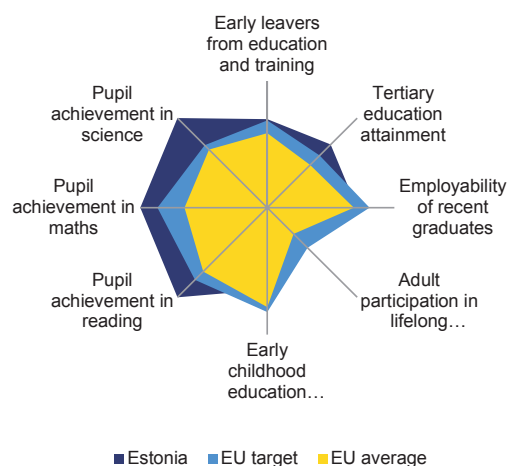
**The basic skills levels of young people and adults are high.** Estonia's results in the 2012 OECD Programme for International Student Assessment (PISA) <sup>(41)</sup> are very encouraging. Performance has significantly improved since 2009 in all tested areas (reading, mathematics and science). Estonia now ranks in the top tier of EU countries participating in the survey (see also Graph 2.2.7). Adult levels of basic skills are also relatively high, as shown by the Programme for the International Assessment of Adult Competencies PIAAC survey <sup>(42)</sup>, with performance above the EU average in proficiency tests on literacy and

<sup>(41)</sup> <http://www.oecd.org/pisa/keyfindings/pisa-2012-results.htm>.

<sup>(42)</sup> <http://www.oecd.org/site/piaac/>.

numeracy. The proportion of low-skilled adults is under 15 %, significantly below the EU average.

Graph 2.2.7: **Educational attainment and/or achievement**



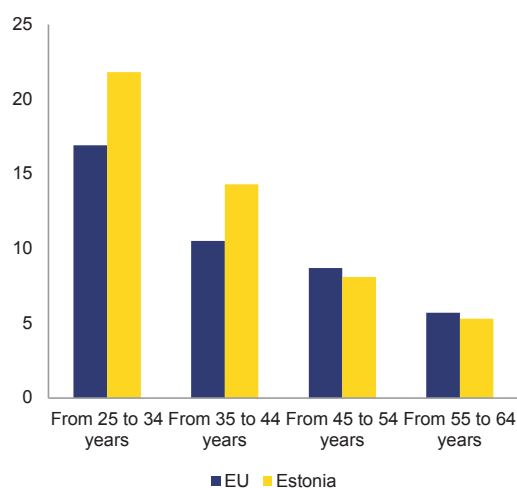
Source: LFS data

**Participation in lifelong learning is above the EU average of 10.5 %, with a clear increase from 6.5 % in 2006 to 12.6 % in 2013.** However, the relatively high participation rate masks differences between age groups: only 3.9 % of people aged 55 or more take part in lifelong learning activities, in comparison with 5.7 % on average in the EU (see Graph 2.2.8). Participation rates for foreign-born people and those with lower levels of education (4.6 % in 2013 for those with 0-2 level in ISCED) also lag behind (see Graph 2.2.9). The national lifelong learning strategy for 2014-20 was adopted by the Estonian Government in February 2014, and programmes to implement it are currently being drawn up <sup>(43)</sup>, e.g. training for teachers and heads of school, teaching materials, study and career counselling, linking studies and the labour market, schools network, etc. The strategy plans to align lifelong learning opportunities with labour market needs, as well as the development of apprenticeships and provision

<sup>(43)</sup> The goal of the Estonian Lifelong Learning Strategy is to decrease the percentage of adults (25-64) with general education only to below 25 % by 2020, which is ambitious given the high proportion of people in Estonia without professional or vocational education (approximately 32 % at present). For more information, see: <http://www.kogu.ee/wp-content/uploads/2014/05/Lifelong-Learning.pdf>.

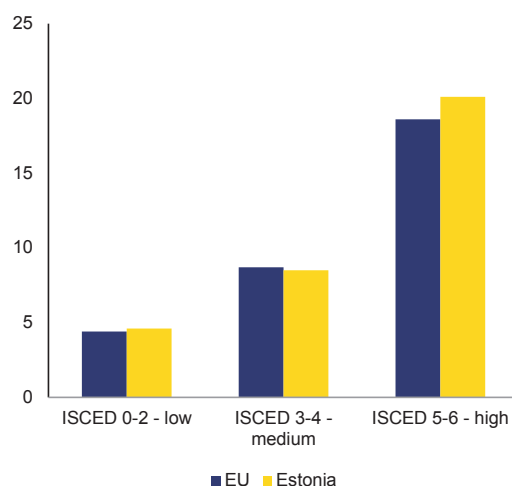
of vocational education and training (VET).

Graph 2.2.8: Participation rate in lifelong learning by age



Source: European Commission

Graph 2.2.9: Participation rate in lifelong learning by educational attainment



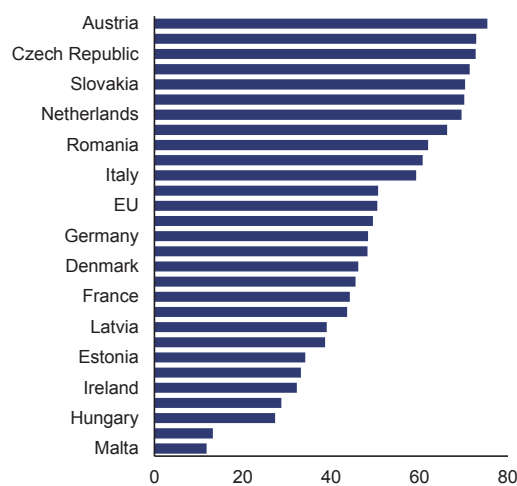
Source: European Commission

**An Adult Education Act and a Professions Act were adopted by the Parliament in early 2015.** The purpose of the Adult Education Act is to improve quality in the provision of adult education, i.e. to set quality standards, introduce principles based on learning outcomes, and increase the visibility of adult training. The Professions Act should constitute the legislative base for launching a coordinated system (OSKA)

that includes future skills forecasting and matching with labour market needs. The supporting scheme for establishing the OSKA system is currently under preparation, aims to launch its activities in the beginning of 2015. **Estonia has therefore made some progress on increasing participation in lifelong learning.**

**The VET participation rate remains relatively low** as compared with the EU average (see Graph 2.2.10). The proportion of VET students in work-based apprenticeships is even lower (around 2%; no EU-level comparison is possible due to many differences in national VET systems) and has not increased recently, despite a comprehensive reform introduced by the 2013 VET Act. The government aims to increase the proportion of VET students in apprenticeships from the current 2% to around 7% by 2020<sup>(44)</sup>. Apprenticeship placements will be awarded through the national apprenticeships centre.

Graph 2.2.10: Participation/ Enrolment in VET education (2012)



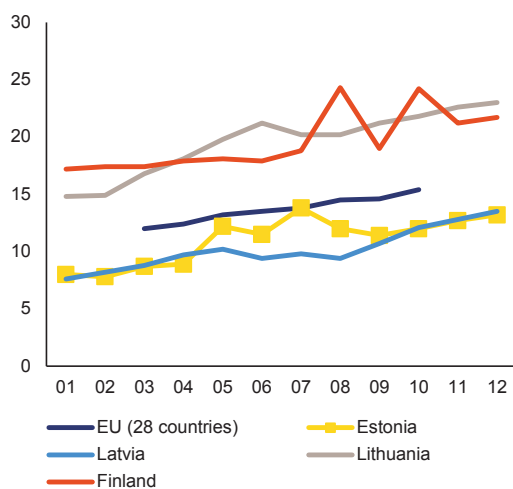
Source: European Commission

**Estonia's tertiary education attainment rate is far above the EU average** (43.7% compared to 36.8%), and already exceeds the Europe 2020 national target of 40%. However, the labour

<sup>(44)</sup> See the 2012 *Apprenticeship supply in the Member States of the European Union* report, [ec.europa.eu/social/BlobServlet?docId=7717&langId=en](http://ec.europa.eu/social/BlobServlet?docId=7717&langId=en). See also the OECD Economic Survey of Estonia, Paris (2015).

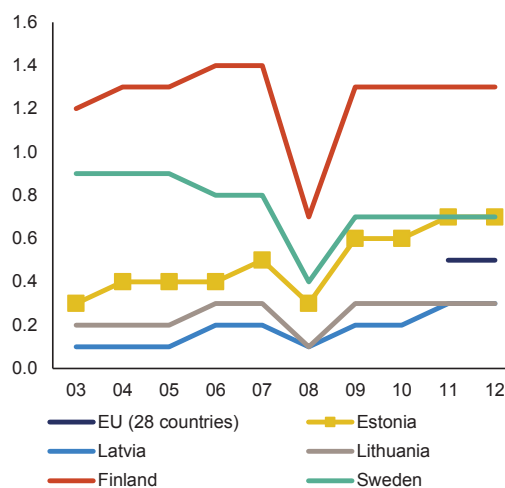
market relevance of higher education is still a challenge. Considering Estonia's technologically-intensive economy, there is a clear shortage of graduates in technology and science subjects. Estonia only had 13.2 tertiary graduates in technology and science per 1000 inhabitants aged 20-29 years in 2012, in comparison with the EU average of 17.1 (see Graph 2.2.11). However, in terms of doctorate students in technology and science, Estonia's level was already above the EU average (see Graph 2.2.12).

Graph 2.2.11: Tertiary graduates in science and technology fields (per 1 000 inhabitants aged 20-29 years)



Source: European Commission

Graph 2.2.12: Doctorate students in science and technology fields (% of the population aged 20-29 years)



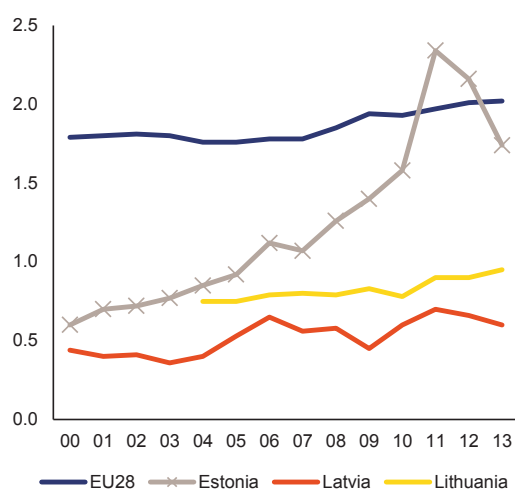
Source: European Commission

The 2013 Higher Education Act aims to raise the quality of and access to higher education and to make university graduates more competitive in the labour market. Since February 2015, student access to needs-based grants and scholarships has been increased and further simplified including in a certain number of priority fields. These measures are a first step in order to increase the number of graduates in technology and science and also to ensure better alignment of higher education with the future skills needs of the economy. However, their effectiveness will have to be closely monitored. Another important feature is that the profile and the functions of higher education institutions are agreed in performance contracts. In case the country has a specific shortage of graduates in a certain field, the state authorities may include the corresponding needs in these contracts. This seems a positive measure, but it is still too early to assess its full impact. Finally, the internationalisation of Estonian higher education remains a challenge for the future.

## 2.3. TECHNOLOGICAL DEVELOPMENT

**Labour productivity is comparatively low in Estonia, reflecting two related weaknesses: low levels of investment into high-value-added sectors and a weak research, development and innovation (RDI) system.** In 2013, the overall level of research and development investment as a percentage of GDP fell below the EU-28 average of 2 % (see Section 1 Scene setter). Although the level of public R&D investment stayed at 0.9 % of GDP in 2013, business R&D investment fell sharply, from 1.2 % of GDP in 2012 to 0.8 % in 2013 (see Graph 2.3.1) reflecting one-off investment in oil shale research and technology in 2011 and 2012. This shows also that business R&D is concentrated in a limited number of companies, with significant changes in particular in the oil shale sector. In parallel, in spite of some progress in recent years, Estonia's innovation performance is still below the EU average <sup>(45)</sup>.

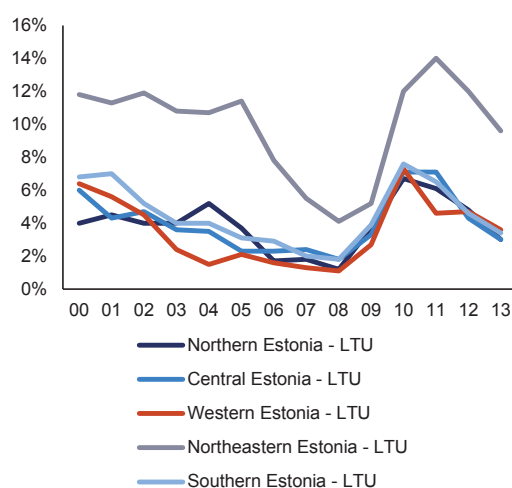
Graph 2.3.1: **Gross domestic expenditure on R&D**



Source: European Commission

**In parallel, in specific regions outside Tallinn and Tartu long-term unemployment has remained relatively high (9.6 % of the respective labour force in 2013) as a result of partial industrial obsolescence** (see Graph 2.3.2).

Graph 2.3.2: **Long-term unemployment (LTU) by region**



Source: Statistics Estonia

### Access to finance

**After the credit bubble of 2005-07, the contribution of capital to output growth has fallen substantially (by around 1 pp.).** At the same time, investment conditions have become more stable because the country has strengthened its macro-prudential framework. With an average capital adequacy ratio at 32 % and non-performing loans at 1.8 %, the Estonian banking sector features one of the highest financial soundness indicators in the EU (see graph 2.3.3).

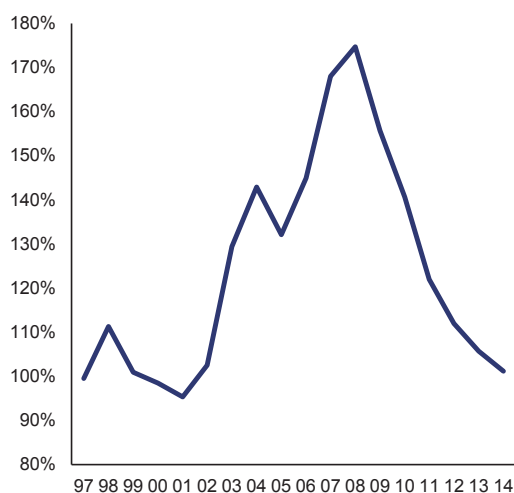
**Credit to non-financial corporations is growing in line with the economy.** Since the end of the deleveraging process (2012), corporate debt has remained close to 35 % of GDP. In the second half of 2014, the stock of corporate loans was growing at the pace of 4-6 % year-on-year. Most loans were granted to real estate businesses, followed by manufacturing companies.

**Overall, access to finance for SMEs continues to be good:** the business loan guarantees and credit insurance provided by KredEx <sup>(46)</sup> are among the most successful measures.

<sup>(45)</sup> Estonia is classified as an innovation follower; its innovation performance is right below the EU average.

<sup>(46)</sup> KredEx is a credit guarantee agency with three main objectives: to develop SMEs, to encourage export growth, and to support the provision of housing to young families.

Graph 2.3.3: Loans-to-deposits ratio in Estonia



Source: Bank of Estonia

**Estonia has made some progress in terms of improving the availability of early-stage financing, broadening the selection of financial instruments, and fostering the activities of business angels.** Venture capital investment is made available through the Baltic Innovation Fund, which has already made the first investment and also includes some private equity investment. The Baltic Innovation Fund will invest EUR 100 million into private equity and venture capital funds focusing on the Baltic States over the next four years. The fund is expected to have a private-sector multiplier effect of three, ensuring good coverage of start-ups and/or riskier projects, and to a lesser extent of private equity. In parallel, the EstBAN business angel network now has 59 members and has invested EUR 4.6 million into 66 companies. The Estonian Development Fund is expected to propose legislative amendments to facilitate the development of local crowd funding platforms, notably by ensuring a level playing field with banks and addressing potential risks.

### Investing in RDI

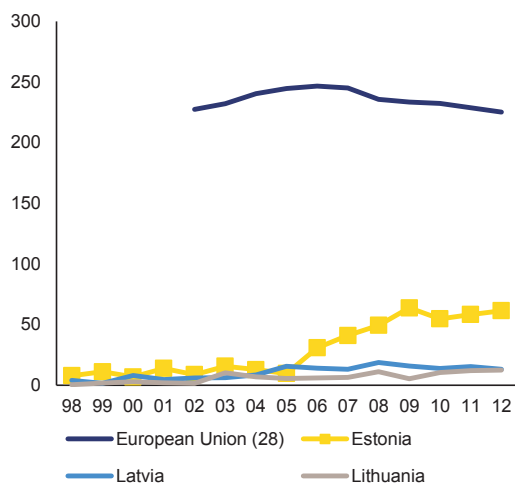
**Estonia has made some progress on implementing its smart specialisation frameworks, consisting of the RDI Strategy and Entrepreneurship Growth Strategy.** The RDI Strategy 2014-20, called 'Knowledge-based Estonia', has set the target of increasing the proportion of public sector research and

development costs financed by the private sector to 7 % by 2020. The implementation plan for the RDI Strategy <sup>(47)</sup> was approved by the government in September 2014; it clarifies the responsibilities for R&D policies and improves coordination across ministries. A Steering Committee has been set up, and includes representatives from different ministries, industry and academia. An amended Organisation of Research and Development Act entered into force as of 1 January 2015 and will strengthen the position of research personnel and give more independence to R&D institutions. The protection of intellectual property rights (IPR) is taken into account in the way in which universities' basic funding is calculated: to increase the still relatively low level of patent applications in Estonia (Graph 2.3.4), one patent application filed by a university is equal to two basic funding units, and one granted patent is equal to three units. The measure put in place to develop technology transfer capacity in universities was successful at the University of Tartu and at Tallinn Technical University, where departments responsible for IPR protection have become functional and business-academia cooperation has become one of the main academic strategies, with vice-rectors responsible for university-industry cooperation.

**However, in spite of the increase in the number of cases involving IPR protection, marketing IPR remains a challenge.** The revenue from IPR commercialisation has remained relatively marginal. Connecting to large international networks for IPR commercialisation and acquiring a highly-skilled labour force to work towards commercialisation are still difficult in Estonia. Finally, as regards the implementation of the smart specialisation framework, it is not clear to what extent the focus can be on priorities shared by research and business innovation while both strategies are being implemented.

<sup>(47)</sup> The RDI Strategy was approved by the government in January 2014 and the Entrepreneurship Growth Strategy in September 2013. Both are funded mainly by EU funds.

Graph 2.3.4: Patent applications to the European Patent Office (per million people in the labour force)



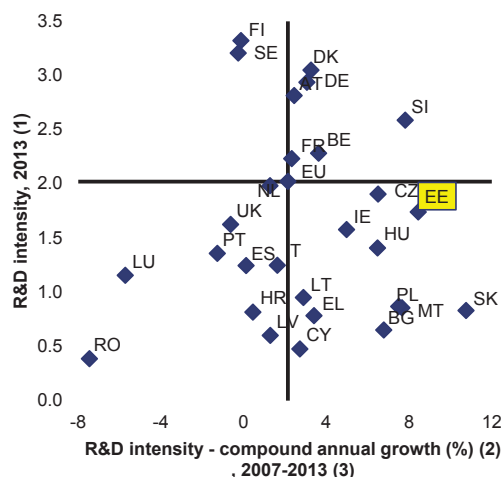
Source: European Commission

**Cooperation between businesses and academia is slowly improving.** The business sector is making some progress in terms of increasing its RDI investment, but this investment is concentrated in a limited number of companies, with significant changes in particular in the shale oil sector and with still insufficient levels of R&D results (see Graph 2.3.5). Moreover, the level of interaction between academia and business is still relatively low: few companies collaborate with research institutions. The current gap between the supply of knowledge from research institutions and demand from the local industry is illustrated by the relatively low amount of funding universities receive from the business sector — less than 5% in 2013.

**Nevertheless, the innovation voucher scheme has enabled SMEs to collaborate with universities and competence centres.** Since 2009, approximately 1400 vouchers have been used, with the restriction of a single EUR 4000 voucher per company. Given the success of the innovation vouchers programme in increasing the number of contracts between research providers and companies, the programme will be continued, with some improvements. The allocated volume of funding will stay the same in the new financing period: the Estonian authorities envisage increasing the share of self-financing to regulate demand and increase the quality of results. In the

new financing period, vouchers of EUR 20000 will become available.

Graph 2.3.5: R&D intensity (gross domestic product on R&D as a % of GDP), 2007-13



Source: European Commission

**An Applied Research Programme in support of smart specialisation areas to be launched in the course of 2015 aims at promoting more effective collaboration between research institutions and businesses.** It is expected to encourage companies to get directly involved in contractual projects with academia by defining the results of applied research and covering 40% of project costs. The scheme aims at reducing the administrative burden for entrepreneurs, as R&D institutions and universities will be in charge of project management and cooperation with the public authorities responsible for funding. In parallel, in the first quarter of 2015, EUR 16 million is expected to be made available to help companies use the potential of creative industries and cultural spheres.

**The Ministry of Education and Research is planning to continue Doctoral Studies and Internationalisation programme ‘DoRa’.** It supports doctoral studies conducted in close cooperation with universities and companies based in Estonia in the form of scholarships designed to motivate students to choose areas of study closely related to the needs of key industries.

**Technological and non-technological innovation will be encouraged through the ‘Enterprise**

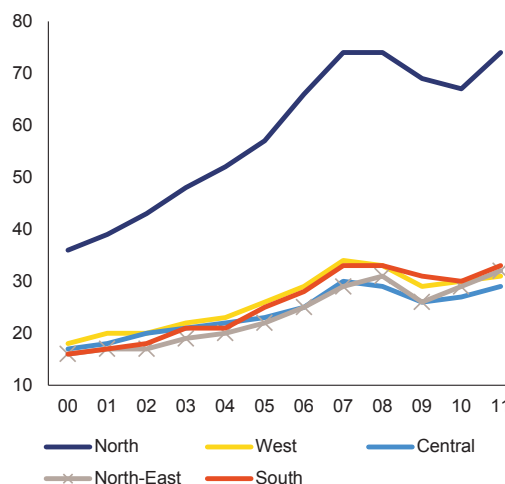
**Development Programme’ and seven Technological Competence Centres, which will be piloted in 2015.** The Ministry of Research and Education is also implementing another pilot measure in 2015, one that provides access to and joint use of core research infrastructure, including to businesses (budget over EUR 0.5 million).

### Investing in regional development

**The Strategy and Action Plan for Estonia’s north-eastern (Ida-Viru) region is under renewal** and will be ready for discussion in the government in early 2015, and is expected to be followed by similar plans for the South-Eastern region that have been initiated in parallel. County development plans are being updated and corresponding action plans put in place also in the other Estonian regions outside the urban areas of Tallinn and Tartu. The regional plans will be co-financed by the European Regional Development Fund, and will promote regional employment and entrepreneurship and develop regional infrastructure to strengthen competitiveness of regions (see Graph 2.3.6).

**Services provided to companies at county level have recently improved.** The county development centres, partly financed by Enterprise Estonia, have started offering more comprehensive support to companies in rural areas. The county development centres are organisations located in all 15 counties: they offer free information on support possibilities and services of private market consultants, as well as counselling services to potential and active entrepreneurs. However, at local government level, the support to entrepreneurship is limited and varying across the regions. The current financing system of local governments does not include incentives to attract entrepreneurs to rural regions. Moreover, according to the current law, the municipalities are not obliged to provide any services nor support to companies.

Graph 2.3.6: GDP per capita by region (in % of EU average)



Source: Statistics Estonia

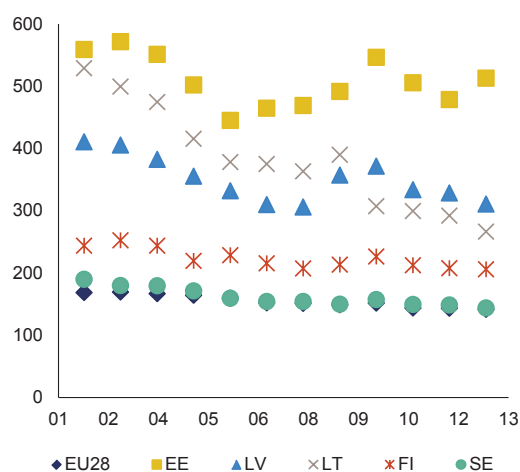
**Industrial parks are developing at a slow pace and have not yet reached a critical mass.** Narva Logistics and Industrial Park, launched in 2011, is the only actively developed greenfield-type industrial park in Ida-Viru County. A total of EUR 35 million in foreign direct investment has been made, and two logistics centres and two companies were set up by the end of 2014. It targets companies active in supplies, trade or business on both sides of the EU-Russian border. Due to the Ukrainian crisis, four companies have postponed their investment plans in Narva Park. An industrial park project has also been started in Jõhvi and work will begin in 2015 to develop industrial parks in Kohtla-Järve and Kiviõli, targeting companies whose economic activities do not relate to Russian markets.

**EUR 29 million from the 2014-20 European Structural Investment Funds (ESIF) will be invested in two urban areas in Ida-Viru (Kohtla-Järve and Narva).** A measure called ‘Sustainable urban development in Ida-Viru area’ will be enforced in 2015, and will include support for a wide range of activities, including entrepreneurship.

## 2.4. INFRASTRUCTURE AND ENERGY / RESOURCE EFFICIENCY

**The energy and resource intensity in Estonia remains among the highest in the EU** (see Graph 2.4.1). Significant investment has been made in public buildings, and measures are ongoing to increase energy efficiency in housing and central heating systems. However, there are still many areas in which investment opportunities exist to improve the energy efficiency of local public buildings and residential and industrial buildings. In the transport sector, Estonia's performance in terms of using energy efficient and clean transport technologies is relatively poor compared with other EU Member States. Estonia has made some progress in terms of improving the effectiveness of its transport infrastructure and passenger rail system, but intermodal connections, including logistics, need to be further developed. Finally, Estonia still has insufficient cross-border energy connections with the rest of the EU, which limits the diversity of supply.

Graph 2.4.1: **Energy intensity of the economy - Gross inland consumption of energy divided by GDP (kg of oil equivalent per EUR 1000)**



Source: European Commission

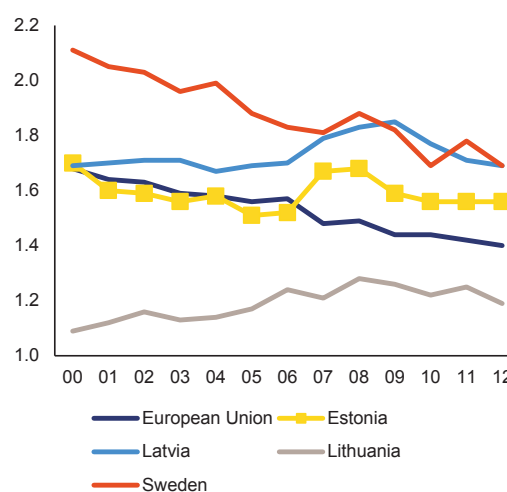
**In 2014, Estonia received a recommendation on improving energy efficiency in buildings and in transport as well as on continuing the development of cross-border connections in the energy sector.**

### Investing in energy efficiency in buildings

Estonia has introduced some investment support to increase the energy efficiency of

**buildings**, notably to improve the inefficient central heating systems and poorly insulated apartment houses. Support for renovating multi-apartment buildings is planned at EUR 340 million in the 2013-20 budget period. These non-legislative measures are relevant but they seem insufficient to foster energy efficiency to the extent needed. The government is also planning to introduce a regulation on district heating systems, which will provide networks with incentives to reduce losses from 22% currently to 15% by 2017. Furthermore, it has proposed a draft regulation that encourages the use of renewable biomass in district heating.

Graph 2.4.2: **Specific energy consumption per dwelling with climatic corrections (toe/dw)**



Source: European Commission

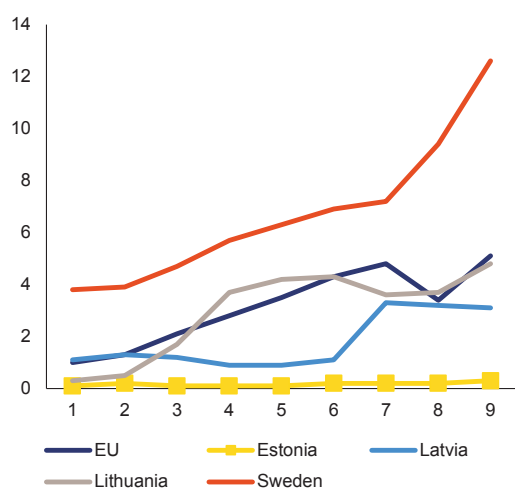
**The government aims to improve the energy efficiency of public buildings in compliance with the energy efficiency directive.** However, the implementation of some important elements of Directive 2012/27/EU on energy efficiency is still unclear and/or missing. These include mandatory audits in large companies, the set-up of an Energy Efficiency Obligation Scheme, the set-up of an Energy Efficiency National Fund, and the installation of individual consumption meters in multi-apartment buildings (in Estonia, many district heating systems still have inadequate or no metering) (see Graph 2.4.2). These elements are expected to be included in a legislative act currently under discussion.



### Investing in energy-efficient transport

In 2012-14, several measures, such as an electro-mobility programme and renewal of the public transport fleet, have been taken to create a more sustainable transport sector. Further structural measures reducing transport intensity and increasing the proportion of sustainable transport modes have been outlined in the Estonian Transport Development Plan for 2014-20.

Graph 2.4.3: Share of renewable energy in transport



Source: European Commission

However, the measures taken so far have not shifted user preferences towards energy-efficient transport<sup>(48)</sup>-(49). An energy-efficiency labelling scheme for cars is being prepared. It aims to create incentives for users to purchase more fuel-efficient cars, but progress in this area appears to be slow and the efficiency of this measure is yet to be assessed. With respect to the very low share of renewable energy in transport (see Graph 2.4.3), far behind Estonia's Europe 2020 target of 10 %, measures have been announced, but not adopted. These include a 5-7 % biofuel mixing obligation for motor fuel and financial support for producing and using bio-methane in transport.

<sup>(48)</sup> Estonia's total greenhouse gas emissions from the transport sector are expected to increase by about 12 % by 2020 compared to 2010, while transport emissions are expected to remain stable on average in the EU.

<sup>(49)</sup> Source: Report Pursuant to Article 3(2) of Decision 280/2004/EC, Estonia. Policies and Measures and Greenhouse Gas Projections. 02/2013.

Some progress has been made on improving the overall effectiveness of the transport system and infrastructure of most modes of transport. Over the last decade, infrastructure quality has improved for all modes of transport, notably due to significant investment including from the EU Structural Funds. However, good transport connections are still a challenge for Estonia's competitiveness. Furthermore, there is no mechanism ensuring sustainable long-term financing for infrastructure maintenance and upgrades.

As for the different transport modes, the diversification of international transport flows remains a key sectoral challenge<sup>(50)</sup>, especially as the volume of traditional Russian bulk cargo has decreased as a result of political tensions, but also due to the new Russian ports operating on the Baltic Sea. Competitiveness vis-à-vis ports in Latvia, Finland and Russia is essential to ensure the full utilisation of infrastructure capacity, in particular railways and ports.

Notwithstanding the improved airport infrastructure, poor air connectivity (non-availability of flights, frequencies and destinations) remains an acute issue in Estonia<sup>(51)</sup>. Riga and Helsinki airports are the main hubs of the Baltic region. Tallinn is connected indirectly<sup>(52)</sup>, which can result in higher costs and longer travel times for passengers.

For roads, the future challenge is ensuring sustainable financing, given that the government has decided to disentangle the fuel excise duty revenue from road infrastructure financing and that road-use in Estonia is free<sup>(53)</sup>. The lack of a modulated taxation of infrastructure usage is an impediment in this respect, but also for

<sup>(50)</sup> According to the 2014 World Bank Logistic Performance index, Estonia ranks 20<sup>th</sup> among the EU Member States, which is an improvement compared to its 25<sup>th</sup> position in 2014.

<sup>(51)</sup> The InterVISTAS study on the Economic Impact of European Airports suggests that for each 10 % rise in a country's connectedness its GDP per capita increases by 0.5 %.

<sup>(52)</sup> A recent European Commission study shows that Estonia's connectivity is about half that of Latvia.

<sup>(53)</sup> Before 1 January 2015, it was compulsory to use 75 % of fuel excise revenue for road maintenance and investment.

internalising external costs and creating a level playing field for road and rail freight transport.

**The use of railways in passenger transportation has significantly improved in the course of 2014** as a result of upgraded lines and new rolling stock: preliminary statistics indicate a 16 % increase.

#### **Investing in cross-border connections**

**As regards the energy sector, major infrastructure developments have been undertaken and/or completed in the electricity sector.** The second electricity interconnection between Estonia and Finland — EstLink 2 — became operational in spring 2014. With its implementation, Estonia has enhanced the security of its electricity network. The preparatory works for the Estonia-Latvia 3<sup>rd</sup> electricity interconnection and related internal line in Estonia have been progressing: construction works are planned to start in 2015. This will increase transfer capacity on the border by 500-600 MW, contributing to the removal of the bottleneck, strengthening security of supply, and improving the effectiveness and competitiveness of energy markets in the entire Baltic region.

**In November 2014, the Prime Ministers of Estonia and Finland agreed on a roadmap for the construction of the Baltic-connector and the associated liquefied natural gas (LNG) terminal.** An LNG terminal with regional scope will be built in Finland, while a smaller gas-distribution terminal is planned to be built in Estonia. The LNG terminal will reduce Estonia's and Finland's dependence on imported Russian gas and will also contribute in the medium term to improving the security of supply in the Baltic region. Work is set to start in 2015 and should be completed in 2019.

**Work on connecting the Baltic States to the EU electricity system (synchronisation with the Continental Europe Network) is ongoing.** The political agreement with Poland and Russia on the scenario chosen by the three Baltic States will be prepared in 2015. In December 2014, Estonia and the other two Baltic States reached an agreement on a synchronisation scenario involving two direct electricity interconnections from Lithuania to Poland (LitPol Link 1 and LitPol Link 2).

**As regards the railway sector, some progress has been achieved on Rail Baltic, a key project that promotes rail transport to ensure Estonia's connectivity.** The project will eventually connect the Baltic States to a trans-European network by a seamless north-south higher-speed European-gauge electrified rail link. It could even open a new link for cargo traffic between Asia and Europe. The project is expected to provide a strong stimulus for economic growth and reduce greenhouse gas emissions through a modal shift to rail in freight and passenger transport. In October 2014, a joint venture to prepare and implement the project was set up. Construction work should start in 2018, and be completed by 2025. According to a 2011 feasibility study (<sup>54</sup>), the Estonian section of the Rail Baltic would cost approximately EUR 1 billion. The expected EU support is up to 85 % of the funding gap of the project.

**As regards investment in the ICT sector, 73.9 % of households in Estonia have next generation broadband networks, as compared with the EU average of 61.8 %.** As regards the five main drivers of the digital economy, Estonia ranks 2<sup>nd</sup> out of 28 Member States in digital public services, 4<sup>th</sup> in the use of internet, 9<sup>th</sup> in human capital, 13<sup>th</sup> in connectivity, and 22<sup>nd</sup> as regards businesses integrating digital technologies. At the same time, Estonia aims to become an eCommerce champion by offering an e-residency identity card to anyone wishing to virtually set up a business in Estonia.

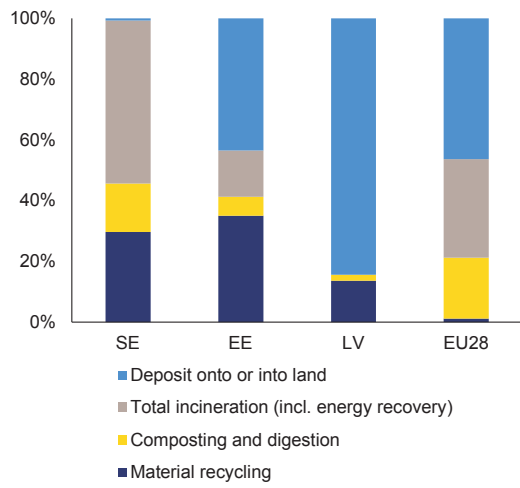
#### **Investing in waste management**

**Estonia has made further progress on municipal waste management.** Municipal waste generation as well as its landfilling has significantly reduced after a progressive increase in landfill taxes (from EUR 8 per ton in 2001 to EUR 29.84 per ton now, and further increases are planned for 2016-18). In addition, this has made alternative options such as energy recovery, recycling and mechanical biological treatment financially more attractive. However, deposit onto and into land remains high, and composting and digestion rather low (see Graph 2.4.4).

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<sup>(54)</sup> AECOM Ltd.

Graph 2.4.4: **Municipal waste by treatment type**



**Source:** European Commission

## ANNEX A

### Overview Table

Commitments	Summary assessment
<b>2014 Country specific recommendations (CSRs)</b>	
<p><b>CSR 1:</b> Reinforce the budgetary measures for 2014 in the light of the emerging gap of 0.3% of GDP based on the Commission services 2014 spring forecast, pointing to a risk of significant deviation relative to the preventive arm of the Stability and Growth Pact requirements. In 2015, significantly strengthen the budgetary strategy to ensure that the medium-term objective is reached and, thereafter, maintained. Complement the budget rule with more binding multi-annual expenditure rules within the medium-term budgetary framework and continue to enhance the efficiency of public spending.</p>	<p>Estonia has made <b>limited progress</b> on addressing CSR 1 of the Council recommendation (this overall assessment of CSR 1 excludes an assessment of compliance with the Stability and Growth Pact):</p> <ul style="list-style-type: none"> <li>• Considerable improvement in the fiscal framework in general: Estonia's strengthened fiscal framework has become fully operational in 2014.</li> <li>• No progress on addressing the recommendation related to the fiscal framework: no measures were taken to complement the budget rule with more binding multiannual expenditure rules.</li> </ul>
<p><b>CSR 2:</b> Improve incentives to work through measures targeted at low income earners. Target activation efforts by ensuring the timely adoption and implementation of the work capacity reform. Increase the efficiency and cost-effectiveness of family policy while improving the availability and accessibility of childcare. Deploy coordinated measures for fostering economic development and entrepreneurship in regions faced with high unemployment.</p>	<p>Estonia has made some progress on addressing CSR 2 of the Council recommendation:</p> <ul style="list-style-type: none"> <li>• Some progress on incentives to work for low-income earners. The unemployment insurance contribution has been lowered and the minimum wage has been increased. However, the increase in the basic personal income tax allowance from EUR 144 to EUR 154 a month only compensates for the average wage increase.</li> <li>• Some progress with the adoption of the work capacity reform package in November. The main acts adopted are as follows: the Work Capacity Benefit Act, amendments to the Social Welfare Act and the Labour Market Services and Benefits Act, and other acts. However, substantial efforts are required during 2015 to ensure successful implementation from January 2016.</li> <li>• Some progress on family policy and childcare availability. Changes to the Parental Benefit Act increased flexibility as of 2014. Additional benefits for families with children have been introduced (increase in child benefits, doubling of</li> </ul>

	<p>means-tested family allowance to low-income families, higher weighing of children when granting subsistence benefits). Amendments to the Pre-School Act adopted by parliament in November were made, with the aim of improving the availability of childcare for children from 1.5 to 3 years old. A Green Paper on Family Support and Services was submitted for public consultation in January. The Operational Programme for Cohesion Policy Funds adopted in December 2014 foresees the creation of 2000 additional nursery and childcare places with ERDF funding in the urban areas of Tallinn, Tartu and Pärnu by 2023.</p> <ul style="list-style-type: none"> <li>• Limited progress on fostering development and entrepreneurship in regions. The regional strategies for north-eastern and south-eastern Estonia were expected to be ready for adoption by the government in January 2015. The process of updating the county development plans and putting in place the corresponding action plans is underway also in the other Estonian regions. The development of industrial parks in regions faced with high unemployment (north-eastern Estonia) is ongoing. Investment supported by ESI funds was made in two urban areas in the Ida-Viru region. A measure called ‘Sustainable urban development in Ida-Viru area’ will be enforced in 2015, and will include support for a wide range of activities. County development centres for companies are being further developed, and have started to offer more comprehensive support to companies in rural areas.</li> </ul>
<p><b>CSR 3:</b> To ensure the labour market relevance of education and training systems, improve skills and qualification levels by expanding lifelong learning measures and systematically increasing participation in vocational education and training, including in apprenticeships. Further intensify prioritisation and specialisation in the research and innovation systems and enhance cooperation between businesses, higher education and research institutions to contribute to international competitiveness.</p>	<p>Estonia has made some progress on addressing CSR 3 of the Council recommendation:</p> <ul style="list-style-type: none"> <li>• Some progress on lifelong learning and vocational education and training. A lifelong learning strategy was adopted by the Estonian government in early 2014, and programmes to implement it are currently being drawn up and are set to be presented in March 2015. A reform of</li> </ul>

	<p>curricula in the VET education system is ongoing, there has been progress on improving skills and qualifications levels, and participation in lifelong learning has increased. An Adult Education Act and a Professions Act have been adopted by the parliament in early 2015.</p> <ul style="list-style-type: none"> <li>• Limited progress on improving attractiveness of vocational education and training as well as of apprenticeships.</li> <li>• Some progress on research and innovation systems and on improving cooperation between businesses, higher education and research institutions. As regards the implementation plan for the RDI strategy approved in September 2014, the responsibilities for R&amp;D policies have been clarified, the process of establishing smart specialisation growth areas has been set up and growth areas have been suggested for further investigation, cooperation improved across ministries, and a Steering Committee has been set up. An applied research programme is being set up (scheduled for 2015). An amended Organisation of Research and Development Act entered into force on 1 January 2015, strengthening the position of research personnel and giving more independence to R&amp;I institutions. As regards links within the knowledge triangle (education-research-innovation), the number of research contracts has tripled. The SPINNO cooperation programme between universities and foreign companies has been set up. Scholarships have been introduced in specific curricula at tertiary level. A legal framework for public R&amp;D procurement has been set up. University research facilities have been made accessible to external users. Clusters and technological development centres are being set up. Some progress on the alignment of higher education (graduates in science and technology) with the needs of businesses and research institutions.</li> </ul>
<p><b>CSR 4:</b> Step up efforts to improve energy efficiency, in particular in residential and industrial buildings.</p>	<p>Estonia has made some progress on addressing CSR 4 of the Council</p>

<p>Substantially strengthen environmental incentives for the transport sector to contribute to less resource-intensive mobility. Continue the development of cross-border connections to neighbouring Member States to diversify energy sources and promote competition through improved integration of the Baltic energy markets.</p>	<p>recommendation:</p> <ul style="list-style-type: none"> <li>• Some progress on residential and industrial buildings. Measures to increase energy efficiency in housing and central heating systems are ongoing. EUR 340 million in total (ERDF + national funding) has been earmarked for supporting renovation and increasing the energy efficiency of apartment buildings in the 2014-20 budget period, covering the renovation of multi-apartment buildings to achieve an average of 45% energy savings for 40 000 households by 2023. In the 2007-2013 period 22 500 apartments have been renovated, the expected energy savings averaging 40%.</li> <li>• Limited progress on environmental incentives in the transport sector. The 2012-14 electro-mobility programme in transport has been implemented. The renewal of public transport fleets is ongoing. The joint venture to prepare and implement Rail Baltic has been established. Measures towards the 5-7% biofuel mixing obligation for motor fuels and including financial support for producing and using bio-methane in transport have been announced, but have not been implemented so far. The shift towards increasing the share of alternative fuels will be encouraged through investment in pilot facilities. An energy-efficiency labelling scheme for cars has been prepared.</li> <li>• Substantial progress on cross-border connections. Estlink 2 (submarine cable) has been operational since March. Estonia is going ahead with the development of a third electricity connector with Latvia. An agreement has been reached on the Baltic connector gas pipeline between Estonia and Finland (scheduled for 2019). Two LNG terminals have been selected: a large-scale one in Finland and a smaller in Estonia.</li> </ul>
<p><b>CSR 5:</b> Better balance local government revenue against devolved responsibilities. Improve the efficiency of local governments and ensure the</p>	<p>Estonia has made limited progress on addressing CSR 5 of the Council</p>

<p>provision of quality public services at local level, especially social services complementing activation measures.</p>	<p>recommendation:</p> <ul style="list-style-type: none"> <li>• No progress on balancing local government revenue against devolved responsibilities. Draft changes to the Equalisation Fund were announced in 2013, but have not been restated since then.</li> <li>• Limited progress on the availability of quality services, in particular social services, at local level. Draft adjustments to the Codified Social Code establishing minimum requirements for municipalities and defining standards for certain social services provided at local level were submitted to the government in February. The government adopted the updated OECD Action Plan that, though favourable for the overall functioning of public administration, is not having an impact on the challenges raised by the country-specific recommendation. Measures to establish regional public transport centres are being continued. The county development centres, partly financed by Enterprise Estonia, have started to offer more comprehensive support to companies in rural areas. Funding from the European Social Fund is being used to deliver social welfare services and implement a counselling project for people with multiple problems and their family members.</li> </ul>
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<p><b>Europe 2020 (national targets and progress)</b></p>	
<p>Employment rate target set in the 2013 NRP: 76%</p>	<p>Estonia reached its intermediate target for 2015, of 72 %, already in 2013. Taking into account that the working age population is estimated to shrink by nearly 45 000 by 2020, the target of 76 % by 2020 is expected to be achieved.</p> <p>Employment rate (%):</p> <p>2012: 71.7 %</p> <p>2013: 73.3 %</p> <p>2014: 74.0 %</p>



<p>R&amp;D target set in the 2013 NRP: 3 % of GDP, of which 2% for the private sector.</p>	<p>The overall level of R&amp;D investment as a percentage of GDP almost doubled in 2008-11 (from 1.26 % to 2.34 %), but slid back to 2.16 % in 2012 and again dropped below the EU-28 average in 2013 (EU-28: 2.02 %; Estonia: 1.74 %). R&amp;D investment in the business sector increased strongly until 2011, but slid back to 1.25 % in 2012 and dropped further to 0.83 % in 2013. Public expenditure on R&amp;D stood at 0.89 % of GDP in 2013, above the EU average.</p>
<p>Greenhouse gas emissions, base year 1990: +11% in 2020 compared to 2005 (in non-ETS sectors)</p>	<p>According to preliminary estimates, the change in non-ETS greenhouse gas emissions between 2005 and 2013 was -7 %. According to the latest national projections and taking into account existing measures, the target is expected to be achieved: +6 % in 2020 compared to 2005 (with a margin of 5 pps.).</p>
<p>Renewable energy target set in the 2013 NRP: 25 %</p> <p>Share of renewable energy in all modes of transport: 10 %</p>	<p>Estonia has reached its 2020 renewable energy target with a level of 25.8 % already in 2012.</p> <p>The transport target will most likely not be met if stronger measures are not timely implemented: in 2012 the share of renewable energy in transport stood at 0.25 %.</p> <p>Estonia's share of RES in final energy consumption was estimated by EurObserv 'FR to have reached 26.8 % in 2013.<sup>(55)</sup></p>
<p>Energy efficiency: reduction of energy consumption by 6.5 Mtoe expressed in primary energy consumption (2.8 Mtoe expressed in final energy consumption).</p>	<p>Estonia is unlikely to meet its energy efficiency target for 2020.</p> <p>Primary energy consumption in Estonia has been growing in 2005-12 and there is limited decoupling of economic growth. Estonia is not on track to meeting its national energy efficiency target.</p>
<p>Early school leaving target: 9.5 %</p>	<p>Estonia performs better than the EU average as regards the early school-leaving rate (9.7 % compared to 12 % in 2013). The rate decreased by 0.8 pps. between 2012 and 2013 and is already very close to Estonia's national target (9.5 %). The high early school-leaving rate for boys fell significantly in recent years, but still remains more than twice as high as the rate for girls. The analysis of sub-</p>

<sup>(55)</sup> <http://www.eurobserv-er.org/>

	<p>indicators suggests that Estonia's good performance can be explained by its strong and increasing investment in education and favourable parental environment<sup>(56)</sup>.</p> <p>Early leavers from education and training:</p> <p>2012: 10.5 %</p> <p>2013: 9.7 %</p>
<p>Tertiary education target: 40 %</p>	<p>Estonia's tertiary education attainment rate is far above the EU average (43.7 % compared to 36.9 %). It increased by 4.6 pps. between 2012 and 2013 and already exceeds the country's national target of 40 % for 2020. It has risen significantly, in particular for female students. The analysis of sub-indicators suggests that although the incentive to complete tertiary education is rather limited, higher levels of parental education might encourage further learning <sup>(57)</sup>,</p> <p>Tertiary education attainment rate:</p> <p>2012: 39.1 %</p> <p>2013: 43.7 %</p>
<p>Target for the reduction of population at risk of poverty: 15% in 2020</p>	<p>A reduction in the at-risk-of-poverty rate from 17.5 % in 2010 (income year) to 15 % in 2020 (income year) would equate to a 36 248 fall in the number of people at risk of poverty in absolute terms.</p> <p>The number of people at risk of poverty in 2013 increased due to increased employment and income. Reaching the target by 2020 requires additional measures to further increase participation in the labour market, and improve skills and qualifications levels.</p> <p>At-risk-of-poverty rate (survey year):</p> <p>2011: 17.5 %</p>

<sup>(56)</sup> See additional contextual indicators at: <http://ec.europa.eu/education/monitor>.

<sup>(57)</sup> See additional contextual indicators at: <http://ec.europa.eu/education/monitor>.

	2012: 17.5 % 2013: 18.6 %
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## ANNEX B

### Standard Tables

Table B.1: **Macroeconomic indicators**

	1996-2000	2001-2005	2006-2010	2011	2012	2013	2014	2015	2016
<b>Core indicators</b>									
GDP growth rate	6.8	7.1	0.1	8.3	4.7	1.6	1.9	2.3	2.9
Output gap <sup>1</sup>	-3.4	3.1	2.7	-0.7	2.3	1.7	1.3	0.9	1.1
HICP (annual % change)	9.0	3.5	4.9	5.1	4.2	3.2	0.5	0.4	1.6
Domestic demand (annual % change) <sup>2</sup>	7.4	9.0	-0.6	13.0	4.6	1.0	4.6	3.0	3.4
Unemployment rate (% of labour force) <sup>3</sup>	10.9	10.5	9.2	12.3	10.0	8.6	7.7	6.8	5.9
Gross fixed capital formation (% of GDP)	28.0	31.1	29.7	25.8	27.0	27.3	26.1	26.0	26.3
Gross national saving (% of GDP)	21.5	23.3	23.5	26.2	26.9	27.6	25.1	24.9	24.7
<b>General government (% of GDP)</b>									
Net lending (+) or net borrowing (-)	n.a.	n.a.	n.a.	1.0	-0.3	-0.5	-0.4	-0.6	-0.6
Gross debt	n.a.	n.a.	n.a.	6.0	9.7	10.1	9.8	9.6	9.5
Net financial assets	32.5	30.0	29.6	34.1	32.5	n.a.	n.a.	n.a.	n.a.
Total revenue	n.a.	n.a.	n.a.	39.1	39.5	38.4	38.5	39.0	38.8
Total expenditure	n.a.	n.a.	n.a.	38.0	39.7	38.9	38.9	39.5	39.4
<i>of which: Interest</i>	n.a.	n.a.	n.a.	0.1	0.2	0.1	0.1	0.1	0.2
<b>Corporations (% of GDP)</b>									
Net lending (+) or net borrowing (-)	-5.0	-5.2	-1.1	-1.6	0.7	3.1	-0.2	-0.6	-0.4
Net financial assets; non-financial corporations	-109.2	-130.6	-166.2	-129.2	-125.2	n.a.	n.a.	n.a.	n.a.
Net financial assets; financial corporations	-10.3	-16.8	2.4	4.1	2.3	n.a.	n.a.	n.a.	n.a.
Gross capital formation	20.9	22.9	18.2	20.0	18.6	17.3	18.1	18.1	18.3
Gross operating surplus	25.1	31.4	28.9	32.0	31.6	31.0	29.7	28.9	29.3
<b>Households and NPISH (% of GDP)</b>									
Net lending (+) or net borrowing (-)	-1.5	-4.9	-3.4	2.0	1.3	0.8	0.5	0.9	0.2
Net financial assets	50.1	49.6	59.8	34.4	35.8	n.a.	n.a.	n.a.	n.a.
Gross wages and salaries	36.3	34.2	36.9	35.1	35.4	36.0	36.5	36.6	36.4
Net property income	1.2	2.2	1.8	4.1	3.4	3.3	2.7	2.4	2.4
Current transfers received	16.3	15.2	14.8	16.5	17.1	16.0	16.1	16.6	16.4
Gross saving	1.7	-0.7	1.8	5.8	5.1	5.1	5.0	5.5	5.0
<b>Rest of the world (% of GDP)</b>									
Net lending (+) or net borrowing (-)	-7.8	-9.8	-5.1	5.5	1.1	2.4	1.0	0.7	0.3
Net financial assets	37.0	67.8	74.6	57.0	55.1	n.a.	n.a.	n.a.	n.a.
Net exports of goods and services	-8.0	-6.6	-2.3	5.8	1.0	1.4	2.2	1.9	1.5
Net primary income from the rest of the world	-1.7	-4.6	-5.2	-5.2	-4.0	-2.5	-3.8	-3.6	-3.5
Net capital transactions	0.5	0.5	1.9	4.1	3.5	2.7	2.5	2.4	2.4
Tradable sector	50.5	49.9	44.9	46.9	46.7	46.6	n.a.	n.a.	n.a.
Non-tradable sector	38.2	39.0	42.9	40.6	40.5	41.0	n.a.	n.a.	n.a.
<i>of which: Building and construction sector</i>	5.5	6.1	7.6	6.1	6.5	6.6	n.a.	n.a.	n.a.

1 The output gap constitutes the gap between the actual and potential gross domestic product at 2010 market prices.

2 The indicator of domestic demand includes stocks.

3 Unemployed persons are all those who were not employed, had actively sought work and were ready to begin working immediately or within two weeks. The labour force is the total number of people employed and unemployed. The unemployment rate covers the age group 15-74.

**Source:** European Commission 2015 winter forecast; Commission calculations

Table B.2: **Financial market indicators**

	2009	2010	2011	2012	2013	2014
Total assets of the banking sector (% of GDP) <sup>1)</sup>	152.7	141.5	117.3	112.9	108.2	108.9
Share of assets of the five largest banks (% of total assets)	93.4	92.3	90.6	89.6	89.7	n.a.
Foreign ownership of banking system (% of total assets)	94.9	94.5	89.2	34.3	33.3	n.a.
Financial soundness indicators:						
- non-performing loans (% of total loans) <sup>2)</sup>	5.2	5.4	4.0	2.6	1.5	1.4
- capital adequacy ratio (% <sup>2)</sup> )	22.3	22.1	18.6	19.3	20.0	31.5
- return on equity (% <sup>2)3)</sup> )	-24.6	2.1	33.3	14.2	17.1	8.8
Bank loans to the private sector (year-on-year % change) <sup>1)</sup>	-4.8	-4.4	-3.5	-0.4	2.7	3.7
Lending for house purchase (year-on-year % change) <sup>1)</sup>	-1.8	-2.1	-1.5	0.2	1.2	2.7
Loan to deposit ratio <sup>1)</sup>	183.9	162.8	144.5	134.4	128.9	127.2
Central Bank liquidity as % of liabilities <sup>4)</sup>	0.0	0.0	0.0	0.1	0.0	0.0
Private debt (% of GDP)	153.3	140.5	124.9	125.8	119.4	n.a.
Gross external debt (% of GDP)						
- public <sup>5)</sup>	5.4	5.3	3.2	7.2	7.9	9.1
- private <sup>5)</sup>	45.8	48.5	47.3	50.9	48.8	49.2
Long-term interest rate spread versus Bund (basis points)*	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Credit default swap spreads for sovereign securities (5-year)*	373.9	107.4	102.4	101.3	58.6	57.1

1) Latest data November 2014.

2) Latest data Q3 2014. Basel II.

3) Branches of foreign banks are excluded.

4) Latest data September 2014.

5) Latest data June 2014. Monetary authorities, monetary and financial institutions are not included.

\* Measured in basis points.

**Source:** IMF (financial soundness indicators); European Commission (long-term interest rates); World Bank (gross external debt); ECB (all other indicators).

Table B.3: **Taxation indicators**

	2002	2006	2008	2010	2011	2012
<b>Total tax revenues</b> (incl. actual compulsory social contributions, % of GDP)	31.0	30.7	31.9	34.0	32.3	32.5
<b>Breakdown by economic function</b> (% of GDP) <sup>1)</sup>						
Consumption	11.9	13.0	11.7	13.5	13.3	13.6
of which:						
- VAT	8.4	9.1	7.9	8.7	8.4	8.7
- excise duties on tobacco and alcohol	1.6	1.6	1.3	1.7	2.0	2.1
- energy	1.5	1.8	2.0	2.6	2.4	2.4
- other (residual)	0.4	0.5	0.5	0.5	0.5	0.4
Labour employed	16.7	14.9	17.1	17.7	16.5	16.2
Labour non-employed	0.2	0.3	0.3	0.4	0.4	0.3
Capital and business income	1.6	2.0	2.1	1.7	1.6	1.7
Stocks of capital/wealth	0.6	0.6	0.6	0.6	0.6	0.6
<i>p.m.</i> Environmental taxes <sup>2)</sup>	2.0	2.2	2.3	3.0	2.8	2.8
<b>VAT efficiency</b> <sup>3)</sup>						
Actual VAT revenues as % of theoretical revenues at standard rate	69.7	80.7	66.6	67.9	68.5	70.1

1. Tax revenues are broken down by economic function, i.e. according to whether taxes are raised on consumption, labour or capital. See European Commission (2014), Taxation trends in the European Union, for a more detailed explanation.

2. This category comprises taxes on energy, transport and pollution and resources included in taxes on consumption and capital.

3. VAT efficiency is measured via the VAT revenue ratio. It is defined as the ratio between the actual VAT revenue collected and the revenue that would be raised if VAT was applied at the standard rate to all final (domestic) consumption expenditures, which is an imperfect measure of the theoretical pure VAT base. A low ratio can indicate a reduction of the tax base due to large exemptions or the application of reduced rates to a wide range of goods and services ('policy gap') or a failure to collect all tax due to e.g. fraud ('collection gap'). It should be noted that the relative scale of cross-border shopping (including trade in financial services) compared to domestic consumption also influences the value of the ratio, notably for smaller economies. For a more detailed discussion, see European Commission (2012), Tax Reforms in EU Member States, and OECD (2014), Consumption tax trends.

**Source:** European Commission

Table B.4: Labour market and social indicators

	2008	2009	2010	2011	2012	2013	2014
Employment rate (% of population aged 20-64)	77.1	70.0	66.8	70.6	72.2	73.3	74.0
Employment growth (% change from previous year)	-0.2	-10.2	-5.0	6.5	1.7	1.2	0.0
Employment rate of women (% of female population aged 20-64)	72.9	69.0	65.9	67.8	69.4	70.1	70.3
Employment rate of men (% of male population aged 20-64)	81.5	71.0	67.8	73.5	75.1	76.7	77.9
Employment rate of older workers (% of population aged 55-64)	62.3	60.3	53.8	57.5	60.5	62.6	63.2
Part-time employment (% of total employment, age 15 years and over)	7.2	10.6	11.1	10.8	10.5	10.2	9.6
Part-time employment of women (% of women employment, age 15 years and over)	10.5	14.0	15.0	16.0	15.3	14.2	12.6
Part-time employment of men (% of men employment, age 15 years and over)	4.1	7.1	7.0	5.6	5.9	6.2	6.8
Fixed term employment (% of employees with a fixed term contract, age 15 years and over)	2.4	2.5	3.7	4.5	3.7	3.5	3.3
Transitions from temporary to permanent employment	71.2	43.0	17.2	60.5	63.4	65.0	:
Unemployment rate <sup>1</sup> (% of labour force, age group 15-74)	5.5	13.5	16.7	12.3	10.0	8.6	7.7
Long-term unemployment rate <sup>2</sup> (% of labour force)	1.7	3.7	7.6	7.1	5.5	3.8	3.5
Youth unemployment rate (% of youth labour force aged 15-24)	12.0	27.4	32.9	22.4	20.9	18.7	15.9
Youth NEET rate (% of population aged 15-24)	8.7	14.5	14.0	11.6	12.2	11.3	n.a.
Early leavers from education and training (% of pop. aged 18-24 with at most lower sec. educ. and not in further education or training)	14.0	13.5	11.0	10.6	10.3	9.7	n.a.
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	34.4	36.3	40.2	40.2	39.5	43.7	n.a.
Formal childcare (from 1 to 29 hours; % over the population aged less than 3 years)	1.0	4.0	2.0	4.0	4.0	n.a.	n.a.
Formal childcare (30 hours or over; % over the population aged less than 3 years)	16.0	21.0	19.0	15.0	14.0	n.a.	n.a.
Labour productivity per person employed (annual % change)	-5.1	-5.1	7.8	1.6	3.0	0.4	1.9
Hours worked per person employed (annual % change)	-1.5	-6.9	2.3	2.4	-1.7	-1.1	-0.9
Labour productivity per hour worked (annual % change; constant prices)	-3.7	2.0	5.4	-0.7	4.8	1.4	2.8
Compensation per employee (annual % change; constant prices)	2.4	-3.2	0.9	-2.1	3.7	2.6	3.1
Nominal unit labour cost growth (annual % change)	14.6	1.5	-5.7	-1.2	3.7	6.0	n.a.
Real unit labour cost growth (annual % change)	8.7	1.3	-6.3	-3.7	0.6	1.7	n.a.

1 Unemployed persons are all those who were not employed, but had actively sought work and were ready to begin working immediately or within two weeks. The labour force is the total number of people employed and unemployed. Data on the unemployment rate of 2014 includes the last release by Eurostat in early February 2015.

2 Long-term unemployed are persons who have been unemployed for at least 12 months.

Source: European Commission (EU Labour Force Survey and European National Accounts)

Table B.5: Expenditure on social protection benefits (% of GDP)

	2007	2008	2009	2010	2011	2012
Sickness/healthcare	4.0	4.8	5.3	4.8	4.4	4.3
Invalidity	1.1	1.5	1.9	1.9	1.8	1.8
Old age and survivors	5.2	6.4	8.0	7.9	7.0	6.8
Family/children	1.4	1.8	2.2	2.3	2.0	1.8
Unemployment	0.1	0.3	1.2	0.8	0.5	0.5
Housing and social exclusion n.e.c.	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	12.0	14.8	18.8	17.8	15.9	15.3
of which: means-tested benefits	0.1	0.1	0.1	0.2	0.2	0.1

Social inclusion indicators	2008	2009	2010	2011	2012	2013
People at risk of poverty or social exclusion <sup>1</sup> (% of total population)	21.8	23.4	21.7	23.1	23.4	23.5
Children at risk of poverty or social exclusion (% of people aged 0-17)	19.4	24.5	24.0	24.8	22.4	22.3
Elderly at risk of poverty or social exclusion (% of people aged 65+)	40.9	35.6	19.0	17.0	21.8	28.0
At-risk-of-poverty rate <sup>2</sup> (% of total population)	19.5	19.7	15.8	17.5	17.5	18.6
Severe material deprivation rate <sup>3</sup> (% of total population)	4.9	6.2	9.0	8.7	9.4	7.6
Proportion of people living in low work intensity households <sup>4</sup> (% of people aged 0-59)	5.3	5.6	9.0	10.0	9.1	8.4
In-work at-risk-of-poverty rate (% of persons employed)	7.3	8.1	6.5	7.9	8.3	7.6
Impact of social transfers (excluding pensions) on reducing poverty	21.1	23.9	36.5	29.7	29.4	26.8
Poverty thresholds, expressed in national currency at constant prices <sup>5</sup>	3117.9	3155.3	2904.6	2763.7	2812.5	2965.5
Gross disposable income (households)	8828.0	8315.0	8338.0	9120.0	9115.0	n.a.
Relative median poverty risk gap (60% of median equivalised income, age: total)	20.3	17.0	23.2	26.0	23.8	21.5
Inequality of income distribution (S80/S20 income quintile share ratio)	5.0	5.0	5.0	5.3	5.4	5.5

1 People at risk of poverty or social exclusion (AROPE): individuals who are at risk of poverty (AROP) and/or suffering from severe material deprivation (SMD) and/or living in households with zero or very low work intensity (LWI).

2 At-risk-of-poverty rate (AROP): proportion of people with an equivalised disposable income below 60 % of the national equivalised median income.

3 Proportion of people who experience at least four of the following forms of deprivation: not being able to afford to i) pay their rent or utility bills, ii) keep their home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) enjoy a week of holiday away from home once a year, vi) have a car, vii) have a washing machine, viii) have a colour TV, or ix) have a telephone.

4 People living in households with very low work intensity: proportion of people aged 0-59 living in households where the adults (excluding dependent children) worked less than 20 % of their total work-time potential in the previous 12 months.

5 For EE, CY, MT, SI and SK, thresholds in nominal values in euros; harmonised index of consumer prices (HICP) = 100 in 2006 (2007 survey refers to 2006 incomes)

6 2014 data refer to the average of the first three quarters.

**Source:** For expenditure for social protection benefits ESSPROS; for social inclusion EU-SILC.

Table B.6: Product market performance and policy indicators

	2004-08	2009	2010	2011	2012	2013	2014
Labour productivity <sup>1</sup> in total economy (annual growth in %)	4.4	-5.7	9.2	1.8	2.9	0.8	n.a.
Labour productivity <sup>1</sup> in manufacturing (annual growth in %)	4.7	-7.9	25.8	3.6	7.5	0.3	n.a.
Labour productivity <sup>1</sup> in electricity, gas (annual growth in %)	-1.2	15.3	-8.8	8.2	-11.1	49.6	n.a.
Labour productivity <sup>1</sup> in the construction sector (annual growth in %)	0.1	-5.1	30.3	5.2	4.8	-4.2	n.a.
Labour productivity <sup>1</sup> in the wholesale and retail sector (annual growth in %)	1.2	-15.7	10.9	14.9	10.3	5.1	n.a.
Labour productivity <sup>1</sup> in the information and communication sector (annual growth in %)	3.6	-2.6	11.9	-17.1	-0.7	6.7	n.a.
Patent intensity in manufacturing <sup>2</sup> (EPO patent applications divided by gross value added of the sector)	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.
<b>Policy indicators</b>	<b>2004-08</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Enforcing contracts <sup>3</sup> (days)	425	425	425	425	425	425	425
Time to start a business <sup>3</sup> (days)	31.0	7	7	7	7	7	5
R&D expenditure (% of GDP)	1.0	1.4	1.6	2.3	2.2	1.7	n.a.
Total public expenditure on education (% of GDP)	5.0	6.0	5.7	5.2	n.a.	n.a.	n.a.
(Index: 0=not regulated; 6=most regulated)	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Product market regulation <sup>4</sup> , overall	1.37	n.a.	n.a.	n.a.	n.a.	1.29	n.a.
Product market regulation <sup>4</sup> , retail	1.40	n.a.	n.a.	n.a.	n.a.	1.50	n.a.
Product market regulation <sup>4</sup> , professional services	1.81	n.a.	n.a.	n.a.	n.a.	1.79	n.a.
Product market regulation <sup>4</sup> , network industries <sup>5</sup>	2.60	2.30	2.50	2.47	2.41	2.40	n.a.

1 Labour productivity is defined as gross value added (in constant prices) divided by the number of persons employed.

2 Patent data refer to applications to the European Patent Office (EPO). They are counted according to the year in which they were filed at the EPO. They are broken down according to the inventor's place of residence, using fractional counting if multiple inventors or IPC classes are provided to avoid double counting.

3 The methodologies, including the assumptions, for this indicator are presented in detail here: <http://www.doingbusiness.org/methodology>.

4 Index: 0 = not regulated; 6 = most regulated. The methodologies of the OECD product market regulation indicators are presented in detail here: <http://www.oecd.org/competition/reform/indicatorsofproductmarketregulationhomepage.htm>

5 Aggregate OECD indicators of regulation in energy, transport and communications (ETCR).

**Source:** European Commission; World Bank — Doing Business (for enforcing contracts and time to start a business); OECD (for the product market regulation indicators)



Table B.7: **Green Growth**

<b>Green growth performance</b>		<b>2003-2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>Macroeconomic</b>							
Energy intensity	kgoe / €	0.51	0.47	0.49	0.55	0.51	0.48
Carbon intensity	kg / €	1.70	1.54	1.49	1.77	1.67	1.50
Resource intensity (reciprocal of resource productivity)	kg / €	2.82	2.79	3.03	2.97	2.90	n.a.
Waste intensity	kg / €	n.a.	1.54	n.a.	1.69	n.a.	1.72
Energy balance of trade	% GDP	-2.8	-4.2	-2.3	-1.6	-0.4	-1.4
Energy weight in HICP	%	13.0	12.2	12.7	13.3	13.9	14.7
Difference between energy price change and inflation	%	3.9	14.9	3.7	3.9	1.3	7.2
Ratio of environmental taxes to labour taxes	ratio	13.5%	13.4%	16.0%	16.3%	16.5%	16.7%
Ratio of environmental taxes to total taxes	ratio	6.9%	7.3%	8.4%	8.7%	8.6%	8.6%
<b>Sectoral</b>							
Industry energy intensity	kgoe / €	0.33	0.33	0.29	0.26	0.25	0.23
Share of energy-intensive industries in the economy	% GDP	11.8	11.3	10.7	13.1	13.3	12.6
Electricity prices for medium-sized industrial users**	€ / kWh	n.a.	0.06	0.06	0.07	0.07	0.08
Gas prices for medium-sized industrial users***	€ / kWh	n.a.	0.03	0.03	0.03	0.03	0.04
Public R&D for energy	% GDP	n.a.	0.02	0.02	0.02	0.02	0.02
Public R&D for the environment	% GDP	n.a.	0.03	0.03	0.07	0.05	0.03
Recycling rate of municipal waste	ratio	20.6%	20.4%	21.2%	18.2%	26.3%	44.2%
Share of GHG emissions covered by ETS*	%	n.a.	69.3	64.1	73.0	72.3	70.6
Transport energy intensity	kgoe / €	0.92	0.99	1.02	1.13	1.07	0.96
Transport carbon intensity	kg / €	2.60	2.77	2.92	3.23	3.10	2.76
<b>Security of energy supply</b>							
Energy import dependency	%	27.1	24.8	22.0	13.7	12.1	17.1
Diversification of oil import sources	HHI	0.28	0.27	0.26	0.24	0.45	0.20
Diversification of energy mix	HHI	n.a.	0.40	0.39	0.47	0.49	0.45
Renewable energy share of energy mix	%	10.2	10.9	13.4	13.7	13.5	14.1

Country-specific notes:

2013 is not included in the table due to lack of data.

General explanation of the table items:

All macro intensity indicators are expressed as a ratio of a physical quantity to GDP (in 2000 prices)

Energy intensity: gross inland energy consumption (in kgoe) divided by GDP (in EUR)

Carbon intensity: Greenhouse gas emissions (in kg CO<sub>2</sub> equivalents) divided by GDP (in EUR)

Resource intensity: Domestic material consumption (in kg) divided by GDP (in EUR)

Waste intensity: waste (in kg) divided by GDP (in EUR)

Energy balance of trade: the balance of energy exports and imports, expressed as % of GDP

Energy weight in HICP: the proportion of "energy" items in the consumption basket used for the construction of the HICP

Difference between energy price change and inflation: energy component of HICP, and total HICP inflation (annual % change)

Environmental taxes over labour or total taxes: from DG TAXUD's database 'Taxation trends in the European Union'

Industry energy intensity: final energy consumption of industry (in kgoe) divided by gross value added of industry (in 2005 EUR)

Share of energy-intensive industries in the economy: share of gross value added of the energy-intensive industries in GDP  
Electricity and gas prices for medium-sized industrial users: consumption band 500–2000MWh and 10000–100000 GJ; figures excl. VAT.

Recycling rate of municipal waste: ratio of recycled municipal waste to total municipal waste

Public R&D for energy or for the environment: government spending on R&D (GBAORD) for these categories as % of GDP

Proportion of GHG emissions covered by ETS: based on greenhouse gas emissions (excl LULUCF) as reported by Member States to the European Environment Agency"

Transport energy intensity: final energy consumption of transport activity (kgoe) divided by transport industry gross value added (in 2005 EUR)

Transport carbon intensity: greenhouse gas emissions in transport activity divided by gross value added of the transport sector

Energy import dependency: net energy imports divided by gross inland energy consumption incl. consumption of international bunker fuels

Diversification of oil import sources: Herfindahl index (HHI), calculated as the sum of the squared market shares of countries of origin

Diversification of the energy mix: Herfindahl index over natural gas, total petrol products, nuclear heat, renewable energies and solid fuels

Renewable energy share of energy mix: %-share of gross inland energy consumption, expressed in tonne oil equivalents

\* European Commission and European Environment Agency

\*\* For 2007 average of S1 & S2 for DE, HR, LU, NL, FI, SE & UK. Other countries only have S2.

\*\*\* For 2007 average of S1 & S2 for HR, IT, NL, FI, SE & UK. Other countries only have S2.

**Source:** European Commission unless indicated otherwise; European Commission elaborations indicated above

