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Country Report Lithuania 2016

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EXECUTIVE SUMMARY

This report assesses Lithuania's economy in the light of the European Commission's Annual Growth Survey published on 26 November 2015. The survey recommends three priorities for the EU's economic and social policy in 2016: re-launching investment, pursuing structural reforms to modernise Member States' economies, and responsible fiscal policies.

After a major recession, with one of the sharpest declines in real GDP across the EU in 2009, the Lithuanian economy showed a remarkable recovery. On average, real GDP grew at 4.1 % of GDP over the period 2011-2014. Initially driven by rapid export growth, the recovery increasingly relied on domestic demand. Since 2013 private consumption has taken over as the main growth engine, supported by rising wages, falling unemployment and subdued inflation. Real GDP has surpassed its previous peak and the current account balance has moved from a deficit to a surplus.

The recovery strengthened Lithuania's overall economic convergence, allowing the country to join the euro area on 1 January 2015. However, previous growth rates cannot be taken for granted, and in 2015, overall growth took a significant hit from declining exports to Russia. For 2015, Lithuania's real GDP grew by 1.7 %, but is set to rebound to 2.9 % in 2016 and 3.4 % in 2017, according to the Commission 2016 winter economic forecast. Strong household consumption, supported by robust real wage growth, investment and increasing exports are expected to be the main growth drivers. Risks to the forecast are tilted slightly to the downside as the recession in Russia could turn out to be more severe than expected, further hampering Lithuania's exports.

The Lithuanian labour market is characterised by falling unemployment and growing wages. The unemployment rate fell to 9.1 % in 2015 and is set to continue its downward trend to 8.1 % in 2016. Two factors – a growing economy supporting job creation and a shrinking labour force – are behind this positive trend. Nominal wages increased by 5.1 % in 2015 and are expected to remain robust in 2016 and 2017. However, the proportion of very long-term and youth unemployment remains high, and high inequality and poverty rates give rise to some concerns.

Recently, potential growth has declined due to unfavourable demographics and sluggish investment. Total factor productivity growth and increasing capital growth rates allowed Lithuania to grow strongly before the start of the crisis in 2009. Since then, these growth rates have fallen. A declining working population has dampened growth. The main drivers of the country's population decline are low fertility rates, overall poor health outcomes, and significant net emigration. Average net emigration in Lithuania during the last 5 years amounted to 22 000 people per year, often young and well-educated. For a country with roughly 2.9 million people, this represents a sizable proportion of its population. In addition, private investment as a share of GDP has not recovered to its pre-crisis level. While public investment held up well, supported by EU structural funds, private investment is roughly 3 % of GDP below its historical average. Unless these trends were to change, the shrinking population and low investments may harm Lithuania's growth potential and ultimately its future convergence path, while putting at risk the sustainability of the pension and long-term care systems.

Going forward, the country has untapped potential, in particular in its labour force and in research and innovation. While the overall business environment is sound and education levels are high, available skills do not always match the requirements of employers. Adoption and absorption of new technology has not spread across the economy and innovation is low, hampering productivity growth. However, as the country's labour productivity represents just two-thirds of the OECD average, there is ample room for sustained convergence in the future.

Overall, Lithuania has made limited progress in addressing the 2015 country-specific recommendations. Some progress was made to reduce the relatively high taxes for low-income earners, but limited efforts have been made to shift taxation towards more growth-friendly taxes. However, some measures have been taken to improve tax compliance. Limited progress has been made in undertaking a comprehensive pension reform to address the sustainability of the pension system. Some steps have been taken to increase the labour market relevance of education, but progress has been limited to better attainment of basic skills. Limited progress has been made on

improving the performance of the healthcare system. On social protection and labour market policy, including the coverage and adequacy of unemployment benefits and cash social assistance, the government is considering a number of reforms. However, these have not yet been adopted and are currently being debated in parliament. Therefore, progress has been limited.

Regarding progress in reaching the national targets under the Europe 2020 strategy, Lithuania is performing well on reducing greenhouse gas emissions, the overall share of renewable energy, energy efficiency, tertiary education attainment, early school leaving and reducing poverty. More effort is needed on the employment rate, renewable energy in transport and R&D investment.

The main findings of the analysis in this report, and the related policy challenges, are as follows:

- **Shifting taxation towards more growth-friendly taxes and increasing tax compliance remain key policy challenges.** The tax burden on low-income earners is relatively high, while environmental and recurrent property taxation is at low levels. Moreover, improving value added tax enforcement and collection remain important.
- **The shrinking working age population constrains future growth potential.** Negative demographic developments, high mortality rates at working age and persistent net emigration, in particular among the young, are causing a population decline. The old age dependency ratio is expected to increase strongly, putting future pension system sustainability at risk.
- **The transition towards a more value-added economy is moving more slowly than expected.** Labour productivity growth is currently outpaced by the rise in wages. Innovation outcomes and the capacity to absorb existing technical knowledge appear quite limited. The institutional framework and the overall strategy to support innovation remain fragmented.
- **A broad-based strengthening of investment in human capital is important to counteract the shrinking working age population. This would also support Lithuania's transition towards a more value-added economy.** Educational attainment has increased strongly, but the proportion of pupils with insufficient basic skills is high. Moreover, there are weaknesses in the quality of teaching in higher education and its ability to foster innovation. In certain sectors, skills shortages have been reported and are expected to become more acute in the future. Improving the labour market relevance of education remains important. The challenges are to streamline the funding and structure of the educational system, develop life-long learning and improve targeting and effectiveness of active labour market policies.
- **Poverty and social exclusion are a challenge as income inequalities are among the highest in the EU.** Despite a strong decrease in the number of people receiving cash social assistance, the risk of becoming poor is increasing for the unemployed, the elderly, disabled people, and single parents. Although planned social and labour market policies reforms cover the pension system, and include improving the unemployment benefit system, the reforms do not yet address the coverage and adequacy of the social assistance scheme.
- **Social dialogue mechanisms remain weak.** Collective agreements hardly play a role and only a minority of employees are covered by such agreements. Trade unions and employer organisations have low coverage across Lithuania. The current discussion on a draft regulation on labour relations is a good opportunity to address these weaknesses and to improve the dialogue between social partners.
- **While the business environment has improved, some investment bottlenecks are still in place.** The labour legislation is outdated and considered restrictive at some levels, which could discourage foreign investment. Capital markets are not fully developed and alternative financing sources are limited. As a result, start-ups and small and medium sized businesses could face financing constraints. Private

investment in R&D is being held back by the lack of a sound legal framework for commercialising research outcomes.

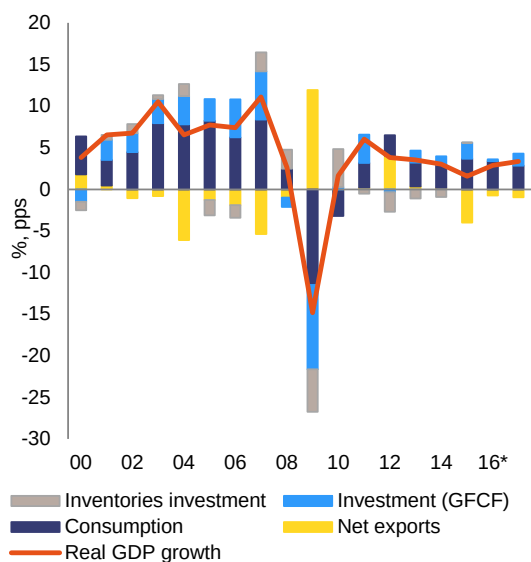
- **The economy is dependent on energy imports and energy efficiency is low.** Lithuania has recently commissioned projects enabling it to diversify its electricity and gas sources, suppliers and routes but still imports considerable amounts of energy from a single supplier. Decoupling the electricity grid from the Russian and Belorussian networks remains a challenge. Moreover, levels of energy intensity are high, in particular in housing, transport and industry.

1. SCENE SETTER: ECONOMIC SITUATION AND OUTLOOK

Growth, external position, labour market, and inflation

Strong domestic demand continues to fuel the Lithuanian economy, while exports took a temporary hit in 2015. Real GDP growth was 1.7 % in 2015 (Graph 1.1). While domestic demand was stronger than in 2014, overall economic growth was hit by a significant drop in exports to Russia. Economic activity, however, is expected to pick up in 2016, based on strong household consumption, supported by robust real wage growth, investment and increasing exports.

Graph 1.1: External and domestic demand, contributions to growth



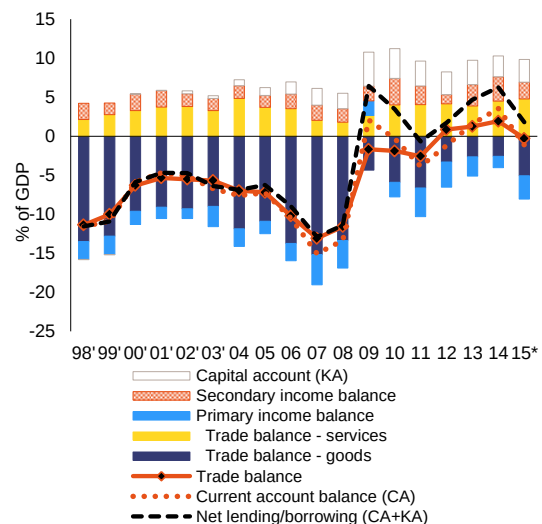
(*) indicates Commission 2016 winter forecast
Source: European Commission

Investment is expected to have grown strongly in 2015, but is set to slow in 2016 due to an expected temporary reduction in the EU structural fund disbursements. The fall in disbursements is a result of the changeover to the new programming period. Despite some bottlenecks (see Box 1.1), investment is forecast to rebound in 2017 when the new programming period gathers pace. In this context, companies are expected to invest as production capacities show historically high utilisation rates. Risks to the forecast are tilted slightly to the downside. The recession in Russia could turn out to be more

severe than expected further hampering Lithuania's exports.

The current account balance is moving closer to zero. After a period of systemic current account deficits in the late 1990s and 2000s, Lithuania turned around its external accounts, led by regained competitiveness and a shift in resources towards tradable sectors (Graph 1.2). Recently Lithuania's current account balance oscillated around zero and even had a surplus of 1.5 % of GDP and 3.6 % of GDP in 2013 and 2014 respectively. The surplus, however, vanished in 2015, mainly as a result of lost exports to Russia and increasing domestic demand fuelling imports. The current account balance is expected to have declined to about -1.1 % of GDP in 2015. Export growth is forecast to improve in 2016 as the impact of the Russian crisis is set to diminish, and demand from the rest of the EU is expected to strengthen. However, due to the high import content of domestic demand imports are set to grow faster than exports. Rebounding remittances are expected to compensate for this trend, resulting in a positive current account balance at 0.2 % of GDP in 2016.

Graph 1.2: Current account balance

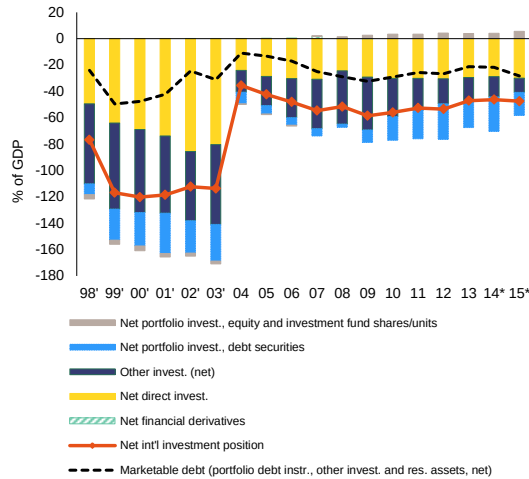


(*) indicates Commission 2016 winter forecast
Source: European Commission

Lithuania's negative net international investment position (NIIP) has stabilised below 50 % of GDP. At the end of 2014, total foreign

assets stood at 55 % of GDP, while total foreign liabilities amounted to 101 % of GDP. The accumulated stock of foreign direct investment (FDI) constitutes the major part of the liabilities side of the international investment position (38.8 % of GDP in 2014 Graph 1.3). This significantly limits the risks associated with a highly negative NIIP. This is because rapid and large swings in international capital flows that could destabilise markets are less likely in the case of direct investments, compared with portfolio and other investments. The more volatile portfolio investment liabilities consist almost entirely of government debt. The government is by far the largest borrower from foreign markets. Its net position in 2014 amounted to -35 % of GDP while the NIIP of all sectors was -46.2 % of GDP. This dependence on foreign financing makes sound fiscal policy even more important in limiting the risks of portfolio outflows.

Graph 1.3: Breakdown of net international investment position, 1998-2015

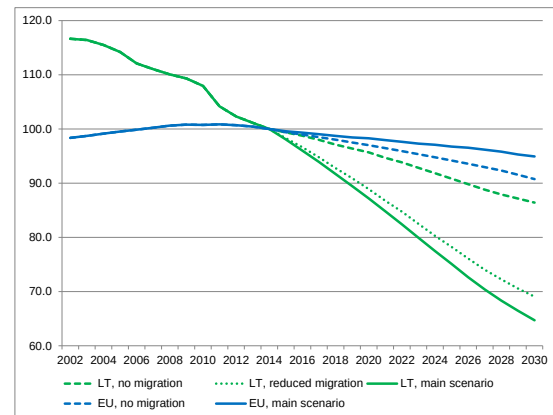


(*) indicates Commission 2016 winter forecast

Source: European Commission

The working age population is declining. A low fertility rate, ageing and relatively weak outcomes of the health care system and, in particular, the predicted high net emigration are set to result in a cumulative loss of 35 % of the working age population by 2030, the largest in the EU (Graph 1.4). If this trend is not reversed, it will jeopardise the availability of suitable labour resources, the sustainability of long-term economic growth and social security systems, in particular the pension system.

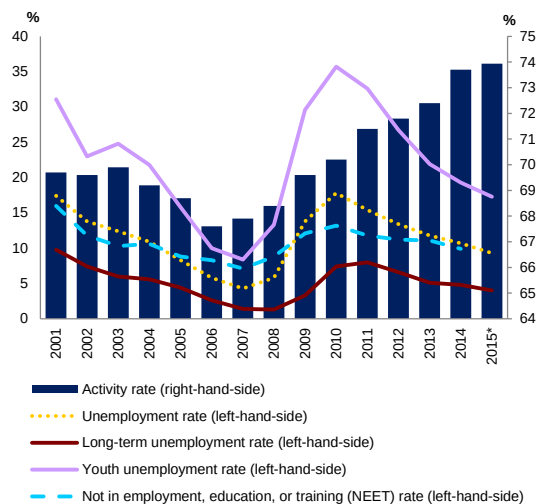
Graph 1.4: Working age population, index 2014=100



Source: European Commission

The labour market is tightening, fuelling wage growth (Graph 1.5) and the unemployment rate fell to 9.1 % in 2015. While employment growth is predicted to slow down in 2016, a further decline in unemployment is forecast on the back of a shrinking labour force. As a consequence, wages are set to grow strongly. In addition, some human capital and skill supply shortages have appeared in the economy (labour market challenges are analysed in section 2.4).

Graph 1.5: Labour market developments



(*) indicates Commission 2016 winter forecast

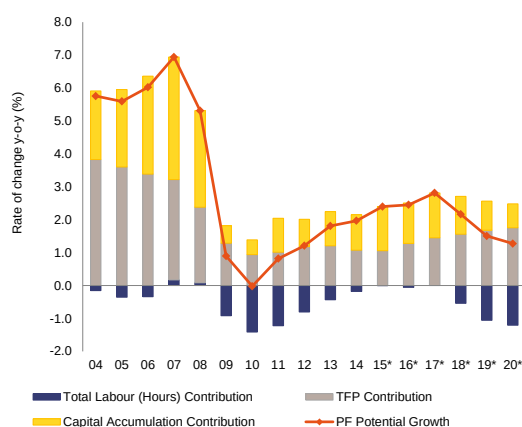
Source: European Commission

Falling energy and food prices put the average annual harmonised index of consumer prices (HICP) inflation into negative territory in 2015 at -0.7 %. In 2016, rising wages and an increase in food prices are expected to put upward pressure on consumer prices. However, with energy prices set to decline further, overall price levels are set to remain broadly unchanged.

Productivity, wages and cost competitiveness

Tight labour market conditions, strong wage growth and a slowdown in productivity growth are set to weaken Lithuania's cost competitiveness. Total factor productivity growth and increasing capital growth rates fuelled the catching-up process before the start of the crisis in 2009 (Graph 1.6). Since then, these growth rates have fallen, while the labour contribution is set to be negative. In parallel, nominal unit labour costs have risen since 2013, eroding competitiveness.

Graph 1.6: Breakdown of potential growth



(*) indicates Commission 2016 winter forecast

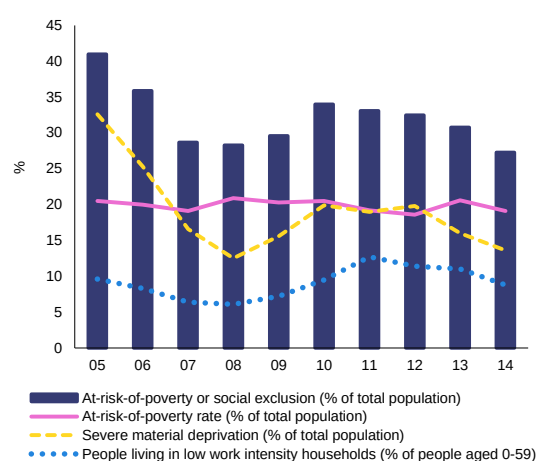
Source: European Commission

Poverty and social exclusion

The large number of people at risk of poverty or social exclusion, although gradually declining, remains high (Graph 1.7). In 2014, the proportion of people at risk of poverty or social exclusion was at 27.3 % of the total population. Moreover, the social safety net is weak, and Lithuanian society is one of the most unequal in the EU. The country has a rising number of people at risk of poverty among the most vulnerable groups, i.e. the unemployed, the elderly, single

parents and people with disabilities (see section 2.4).

Graph 1.7: Poverty and social exclusion



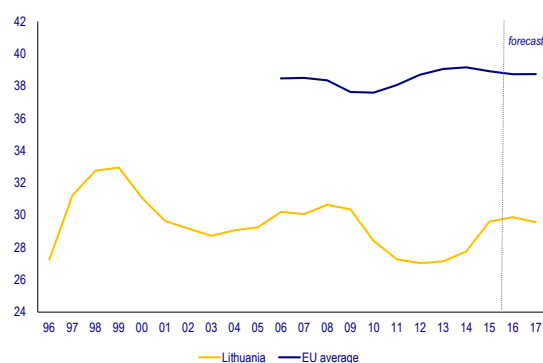
Source: European Commission and OECD. For expenditure for social protection benefits ESSPROS; for social inclusion EU-SILC

Fiscal developments, public finances, financial sector and credit growth

Despite a steady decline in the general budget deficit, general government debt is more than twice as high as it was before the financial crisis. Moreover, the fiscal improvement is set to come to a standstill in 2015 and 2016. In 2015, the general government deficit is expected to have increased to 0.9 % of GDP from 0.7 % a year before. For 2016, the general government deficit is forecast to increase to 1.2 % of GDP. These developments, together with pre-financing of bond redemptions and EU-funded expenditures are set to result in a public debt of around 43 % of GDP in 2015, which is expected to drop back to 40.6 % of GDP in 2016.

The tax burden is one of the lowest in the EU (Graph 1.8). However, it is relatively high for low income earners, whereas revenues from environmental and other growth-friendly sources remain low.

Graph 1.8: Tax to GDP ratio



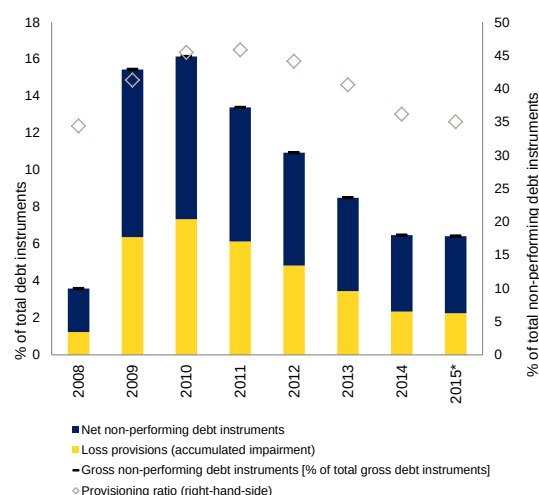
Source: European Commission

The tax compliance gap is high. Lithuania has one of the lowest values for value added tax (VAT) enforcement and compliance in the EU. The VAT compliance gap between the theoretical legal VAT liability and tax revenues actually collected stood at 37.7 % in 2013, considerably higher than the EU average of 15.2 % (the tax system is analysed in more detail in section 2.1).

Lithuania's banking sector completed its post-crisis deleveraging and it also remains stable and financially sound. Banks are well capitalised and the quality of bank assets continues to improve. The average share on non-performing debt instruments fell further in 2014. Loan-loss provisions cover more than a third of outstanding non-performing debt instruments (Graph 1.9).

Overall credit growth remains sluggish despite mortgage and business lending picking up slightly in early 2015. Barriers to more dynamic credit growth include tight financing requirements imposed on SMEs, the lack of collateral and the high cost of obtaining finance (interest rates, guarantee fees, administrative costs). Moreover, local capital markets remain relatively shallow and underdeveloped.

Graph 1.9: Non performing debt



(*) indicates forecast data

Source: ECB

House prices have picked up, but are below their long-term values. Residential investment growth decreased strongly in 2009 and 2010, but grew in 2011 and 2012 by 4.8 % and 5.4 %, respectively. In 2013 and 2014, residential investment accelerated to growth rates of 16.6 % and 20.7 % respectively. Nevertheless, Lithuanian house prices currently remain below their long-term values (for a more detailed analysis of the financial sector, see section 2.2).

Innovation and infrastructure

Innovation outcomes are poor and absorptive capacity to recognise and assimilate new external knowledge is limited. While public funding for research and development (R&D) reached the EU average in 2014, business R&D intensity is still lagging behind, and research outcomes such as patents remain meagre.

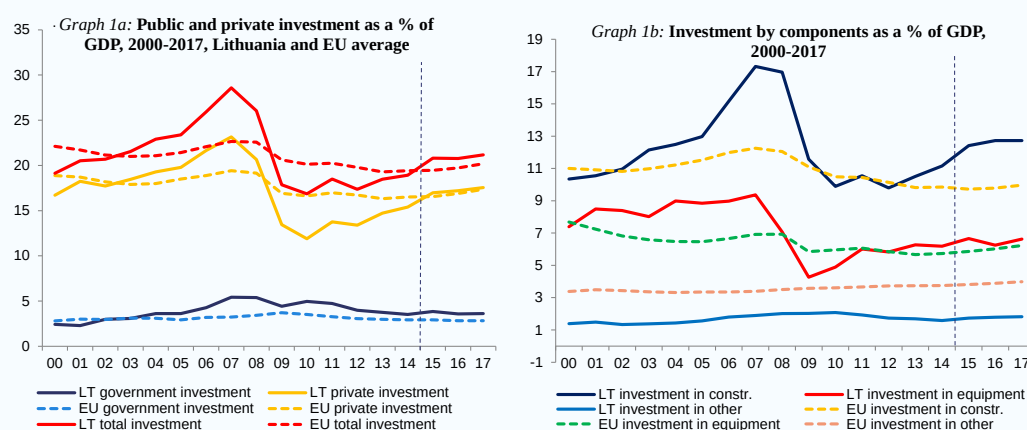
Lithuania has put in place a modern governance framework for its state-owned enterprises. However, the return on equity of many state-owned enterprises remains below its target. At the same time, synergies in management and the scope for consolidation in order to achieve better public services and infrastructure are not being fully exploited.

Box 1.1: Investment challenges

Section 1: Macroeconomic perspective

Prior to Lithuania's accession to the European Union in 2004, investment showed a remarkable upward trend, that peaked in 2007. In 2009, in the wake of the global financial crisis, investment (as a share of GDP) dropped sharply until 2010 (Graph 1a). Since then, it recovered slowly but steadily and exceeded the EU average in 2014. For 2015, robust investment growth is expected to have continued due to a pick-up in EU structural fund disbursements. Nevertheless, investment has not yet fully regained its pre-crisis level and seems too low for a catching-up economy. A decline in EU structural fund disbursements, caused by the changeover to the new programming period is set to slow investment growth in 2016. Investment is however forecast to rebound in 2017 as the new programming period gathers pace and companies are expected to invest as production capacities are exhausted.

Graph 1: Investment developments



(1) Note: Forecast for 2015-2017 based on a no-policy-change assumption.

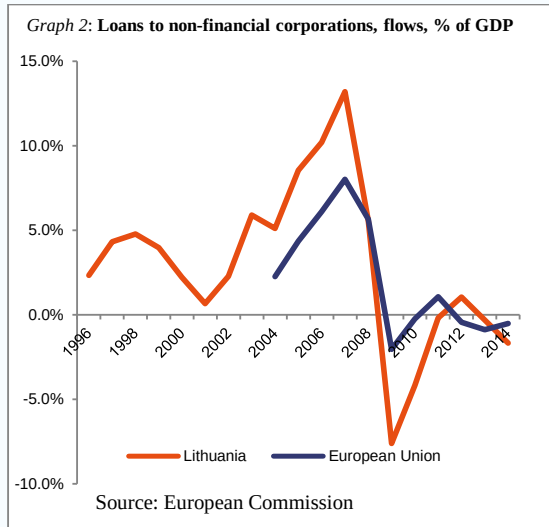
Source: European Commission

Private investment is the driving force behind the observed overall investment trend since public investment remained more or less flat over the time horizon. In that respect Lithuania is similar to the rest of the EU.

Construction is the largest type of investment (as a share of GDP), which is largely driven by investments in non-residential assets (Graph 1b). Investments in equipment, a possible productivity driver, show a sharp decline, starting in 2007, followed by a recovery in mid-2009. It remains however well below pre-crisis levels, while at the same time productivity growth has been sluggish. Nevertheless, non-residential construction and investment in equipment clearly stand above the EU average for most years, and also tend to show a larger variation, which is roughly in line with the overall macroeconomic environment including Lithuania's housing and construction boom before the crisis in 2009. A sharp correction took place during the crisis, followed by a modest but steady recovery in recent years.

(Continued on the next page)

Box (continued)



Between 1996 and 2004, the average credit flow to non-financial corporations (NFCs) was 3.6 % of GDP, during the boom years (2005-2008) it amounted to 13.2 % of GDP, while over 2009-2014 it was on average negative (-1.3 % of GDP), on average (Graph 2). The credit surge that started in 2005 explains the boom in construction investment, which is unlikely to return to levels seen during 2005-2008. Meanwhile, the overall lower credit flow compared to the pre-boom period might explain why investment in manufacturing has not returned to the level seen during 2000-2004.

Section 2: Assessment of barriers to investment and ongoing reforms

Overall, barriers to private investment in Lithuania are moderate as confirmed by the European Commission's Staff Working Document 'Challenges to Member States' Investment Environments' ⁽¹⁾. The country scores relatively high in most of the World Bank's Doing Business indicators. It ranks particularly well in terms of starting a business, registering property, and enforcing contracts. However, it ranks less favourably in getting access to electricity, protecting minority investors, paying taxes and resolving insolvency. Lack of procedures for companies to directly transfer their registered office from Lithuania abroad and vice versa can also contribute to weakening the business and investment environment ⁽²⁾.

Access to finance for start-up companies and small-medium sized companies represents a potential bottleneck for investments. Rather risk averse banks dominate the financial sector. Business perceives financing requirements as tight, the request of collateral and high financing costs may prevent small businesses from getting a loan. Moreover, capital markets are very shallow and there is limited availability of alternative financing sources in particular for start-ups and riskier projects (see section 2.2).

The employment protection legislation is outdated and considered restrictive at some levels. This may lead to uncertainty and deter foreign investors. A new draft law for a more modern labour code is currently being discussed in parliament (see section 2.4).

Efficiency of public investment could be improved by simplified administrative and authorisation procedures (e.g. for infrastructure (energy) investments). The administrative capacity on investment decisions seems underdeveloped, and the public procurement process, particularly at municipal level, is not always fully transparent. In addition, excessively detailed public procurement laws could be revisited to reduce red tape. Calls for tender seem not to reach foreign firms and consortia, thereby preventing international competition (see section 2.7).

Private investment into research and innovation (R&I) has been low, which could be related to insufficient incentives for business R&I and public-private cooperation. This is mainly due to the lack of a proper legal base for the commercialisation of research outcomes, and the quality of the science base. Further reforms may be needed to facilitate access to and increase the awareness of existing support schemes (see section 2.6).

⁽¹⁾ 'Member States Investment Challenges', SWD(2015) 400 final/2 (http://ec.europa.eu/europe2020/pdf/2016/ags2016_challenges_ms_investment_environments_en.pdf).

⁽²⁾ Apart from the European Companies (SEs).

Box 1.2: Contribution of the EU Budget to structural change

Lithuania is a major beneficiary of the European Structural and Investment Funds (ESIF) and can receive up to EUR 8.4 billion for the period 2014-2020. This is equivalent to 3% of GDP annually and 68.2% of the expected national public investment in areas supported by the ESI funds.

All necessary reforms and strategies have been put in place in order to fulfil ex-ante conditionalities in those areas to benefit from the funds in order to ensure successful investments.

The programming of the funds includes a focus on priorities and challenges identified in recent years in the context of the European Semester, for instance in relation to CSRs on the targeting of active labour market policy measures to the low-skilled and long-term unemployed, improving the labour-market relevance of education and addressing the energy efficiency of the buildings stock. Lithuania also benefits the Youth Employment Initiative to support young people to find their way to the labour market, get involved into traineeship projects or continue their education. Regular monitoring of implementation includes reporting in mid-2017 on the contribution of the funds to Europe 2020 objectives and progress in addressing relevant structural reforms to maximise the use of EU financing (notably, in the RDI, employment, education, social inclusion, environment, transport and energy sectors).

Financing under the new European Fund for Strategic Investments (EFSI), Horizon 2020, the Connecting Europe Facility and other directly managed EU funds would be additional to the ESI funds. Following the first rounds of calls for projects under the Connecting Europe Facility, Lithuania has signed agreements for EUR 113 million in the energy field and EUR 177 million for transport projects. For more information on the use of ESIF in Lithuania, see: <https://cohesiondata.ec.europa.eu/countries/LT>.

Table 1.1: Key economic, financial and social indicators

	2003-2007	2008	2009	2010	2011	2012	2013	2014	forecast		
									2015	2016	2017
Real GDP (y-o-y)	8.7	2.6	-14.8	1.6	6.0	3.8	3.5	3.0	1.7**	2.9	3.4
Private consumption (y-o-y)	13.6	3.9	-17.4	-3.4	4.6	3.6	4.3	4.1	5.2	4.9	3.8
Public consumption (y-o-y)	3.0	0.2	-1.2	-3.6	0.2	1.3	1.0	1.3	2.3	1.4	2.0
Gross fixed capital formation (y-o-y)	16.7	-4.0	-38.9	1.5	20.1	-1.8	8.3	5.4	10.3	1.0	7.0
Exports of goods and services (y-o-y)	10.0	13.4	-12.8	18.9	14.9	12.2	9.6	3.0	1.2	3.1	4.3
Imports of goods and services (y-o-y)	14.1	12.2	-28.0	18.7	14.2	6.6	9.3	2.9	6.3	4.1	5.5
Output gap	4.0	6.3	-10.3	-8.8	-4.0	-1.5	0.1	1.2	0.4	0.8	1.4
Potential growth (y-o-y)	6.1	5.3	0.9	0.0	0.8	1.2	1.8	2.0	2.4	2.5	2.8
Contribution to GDP growth:											
Domestic demand (y-o-y)	11.6	1.3	-21.6	-2.8	6.4	2.1	4.3	3.8	5.6	3.6	4.3
Inventories (y-o-y)	0.2	2.3	-5.1	4.6	-0.5	-2.3	-1.1	-0.9	0.0	0.0	0.0
Net exports (y-o-y)	-3.1	-1.0	11.9	-0.2	0.2	4.0	0.3	0.2	-4.0	-0.7	-0.9
Contribution to potential GDP growth:											
Total labour (hours) (y-o-y)	-0.1	0.1	-0.9	-1.4	-1.2	-0.8	-0.4	-0.2	0.0	-0.1	0.0
Capital accumulation (y-o-y)	2.6	2.9	0.5	0.5	1.0	0.8	1.0	1.1	1.3	1.2	1.4
Total factor productivity (y-o-y)	3.6	2.3	1.3	0.9	1.0	1.2	1.2	1.1	1.1	1.3	1.5
Current account balance (% of GDP), balance of payments	-10.1	-13.3	2.1	-0.3	-3.9	-1.2	1.5	3.6	.	.	.
Trade balance (% of GDP), balance of payments	-9.4	-11.6	-1.7	-1.9	-2.6	0.9	1.3	1.9	.	.	.
Terms of trade of goods and services (y-o-y)	1.5	3.6	-3.8	0.1	-1.1	-0.7	0.1	0.8	3.3	0.6	-0.4
Capital account balance (% of GDP)	1.4	2.0	4.4	3.8	3.2	2.9	3.1	2.7	.	.	.
Net international investment position (% of GDP)	-45.1	-51.5	-58.4	-55.9	-52.6	-53.4	-47.0	-46.2	.	.	.
Net marketable external debt (% of GDP)(1)	-16.5	-28.8	-32.4	-29.1	-25.6	-26.7	-21.2	-21.8	.	.	.
Gross marketable external debt (% of GDP)(1)	51.0	63.4	77.5	76.2	70.7	68.2	60.0	61.1	.	.	.
Export performance vs. advanced countries (% change over 5 years)	.	58.2*	41.9	28.7	41.4	48.2	30.8	44.46	.	.	.
Export market share, goods and services (y-o-y)	7.4	19.6	-11.5	4.6	13.5	5.8	8.4	-0.6	.	.	.
Net FDI flows (% of GDP)	-3.0	-3.4	0.6	-2.2	-3.2	-0.7	-0.6	0.4	.	.	.
Savings rate of households (net saving as percentage of net disposable income)	-1.1	-4.4	1.5	4.4	1.2	-2.2	-1.8	-3.7	.	.	.
Private credit flow (consolidated, % of GDP)	14.5	10.4	-9.4	-6.0	-1.0	0.6	-0.2	-1.3	.	.	.
Private sector debt, consolidated (% of GDP)	52.5	76.8	83.4	74.5	64.8	61.2	56.4	52.5	.	.	.
of which household debt, consolidated (% of GDP)	15.0	28.4	32.6	29.6	25.8	23.7	22.4	21.5	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	37.5	48.4	50.8	44.9	39.0	37.5	34.0	31.0	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-6.7	-4.4	14.9	7.9	4.7	7.1	9.6	10.8	.	.	.
Corporations, gross operating surplus (% of GDP)	33.2	32.6	31.9	36.3	38.4	38.4	38.3	37.9	.	.	.
Households, net lending (+) or net borrowing (-) (% of GDP)	-0.6	-3.8	0.6	2.4	3.7	-2.0	-2.4	-3.5	.	.	.
Deflated house price index (y-o-y)	16.9	-1.8	-32.8	-8.6	2.4	-3.2	0.2	6.3	.	.	.
Residential investment (% of GDP)	2.2	3.4	3.3	2.1	2.0	1.9	2.2	2.5	.	.	.
GDP deflator (y-o-y)	4.8	9.7	-3.3	2.4	5.2	2.7	1.3	1.2	0.1	0.1	3.6
Harmonised index of consumer prices (HICP, y-o-y)	2.5	11.1	4.2	1.2	4.1	3.2	1.2	0.2	-0.7	-0.1	2.1
Nominal compensation per employee (y-o-y)	13.9	14.1	-9.3	-0.1	6.3	4.2	5.4	3.9	5.1	4.7	5.0
Labour productivity (real, person employed, y-o-y)	7.9	4.0	-7.7	7.3	5.5	2.0	2.2	1.0	.	.	.
Unit labour costs (ULC, whole economy, y-o-y)	5.6	9.7	-1.7	-7.0	0.8	2.2	3.1	2.8	4.4	1.9	1.7
Real unit labour costs (y-o-y)	0.8	0.0	1.7	-9.1	-4.2	-0.5	1.8	1.6	4.3	1.8	-1.8
Real effective exchange rate (ULC, y-o-y)	4.4	4.6	-2.0	-8.4	0.4	-1.8	3.2	2.1	1.1	1.2	.
Real effective exchange rate (HICP, y-o-y)	0.5	6.0	6.8	-5.3	0.5	-2.0	0.9	2.6	0.5	3.0	-0.8
Tax wedge on labour for a single person earning the average wage (%)	26.6	23.4	22.2	22.1	22.3	22.5	22.7	22.6	.	.	.
Tax wedge on labour for a single person earning 50% of the average wage (%)	19.6*	19.8	17.5	17.3	17.6	18.0	18.5	17.2	.	.	.
Total financial sector liabilities, non-consolidated (y-o-y)	34.2	5.4	-4.1	-0.7	-0.5	0.9	-0.2	9.0	.	.	.
Tier 1 ratio (%) (2)	.	10.8	8.5	8.9	11.8	12.0	9.3	10.6	.	.	.
Return on equity (%) (3)	.	6.9	-9.4	-6.6	-4.1	4.3	2.1	1.0	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (4)	.	3.6	15.4	16.1	13.4	10.9	8.5	6.5	.	.	.
Unemployment rate	8.3	5.8	13.8	17.8	15.4	13.4	11.8	10.7	9.1**	8.0	7.2
Long-term unemployment rate (% of active population)	4.0	1.3	3.3	7.4	8.0	6.6	5.1	4.8	.	.	.
Youth unemployment rate (% of active population in the same age group)	16.2	13.3	29.6	35.7	32.6	26.7	21.9	19.3	16.6	.	.
Activity rate (15-64 year-olds)	69.1	68.4	69.6	70.2	71.4	71.8	72.4	73.7	.	.	.
People at-risk poverty or social exclusion (% total population)	35.2	28.3	29.6	34.0	33.1	32.5	30.8	27.3	.	.	.
Persons living in households with very low work intensity (% of total population aged below 60)	8.1	6.1	7.2	9.5	12.7	11.4	11.0	8.8	.	.	.
General government balance (% of GDP)	-0.8	-3.1	-9.1	-6.9	-8.9	-3.1	-2.6	-0.7	-0.9	-1.2	-0.4
Tax-to-GDP ratio (%)	29.6	30.9	30.6	28.7	27.6	27.3	27.4	28.0	29.9	30.3	30.1
Structural budget balance (% of GDP)	.	.	.	-3.3	-3.6	-2.6	-2.3	-1.6	-1.1	-1.5	-1.0
General government gross debt (% of GDP)	18.0	14.6	29.0	36.2	37.2	39.8	38.8	40.7	42.7	40.6	42.3

(1) Sum of portfolio debt instruments, other investment and reserve assets.

(2,3) Domestic banking groups and stand-alone banks.

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

(*) Indicates fifth Balance of Payments Manual and/or the 1995 European system of national and regional accounts.

(**) Actual data from Statistics Lithuania.

Source: European Commission 2016 winter forecast; ECB

2. STRUCTURAL ISSUES

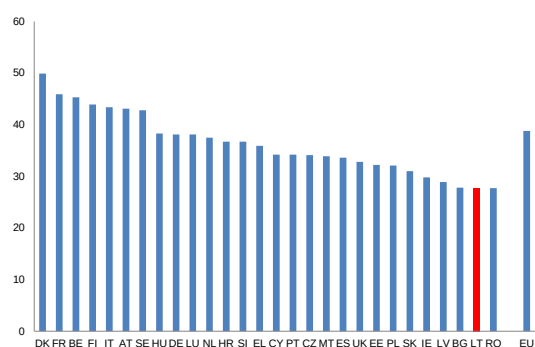
This section provides an analysis of structural economic and social challenges for Lithuania. Focusing on the policy areas covered in the 2015 country-specific recommendations, this section analyses issues related to the broadening of the tax base and tax compliance, the challenges arising from the declining working age population and active labour market and social policies. In addition, this section also covers the financial sector, innovation, and infrastructure.

2.1 TAXATION, SUSTAINABILITY OF PUBLIC FINANCES AND FISCAL FRAMEWORK

Taxation, tax system and VAT compliance

Improving fiscal buffers and increasing the growth-friendly character of the current tax system remain important. Addressing these aspects could strengthen Lithuania's ability to react to adverse international economic shocks, and safeguard the country's medium-term growth prospects.

Graph 2.1.1: Tax burden in the EU, 2014 (% of GDP)



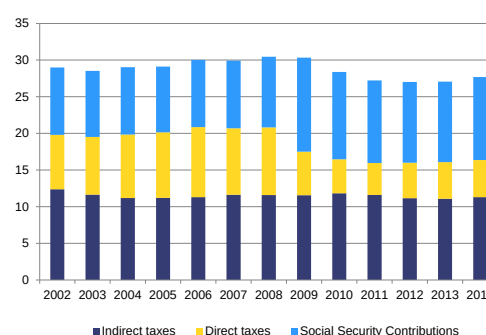
(1) The data does not include imputed social security contributions.

Source: European Commission, Eurostat

The country's tax-to-GDP ratio, also often referred to as its tax burden, is among the lowest in the EU. In 2014, it was at 27.7 % of GDP; compared with the EU average of 38.8 % (Graph 2.1.1).

In 2014, Lithuania's revenues came from indirect taxes (11.5 % of GDP) and social security contributions (11.5 % of GDP), while direct taxes accounted for 5.1 % of GDP (Graph 2.1.2).

Graph 2.1.2: Composition of taxes (% of GDP)



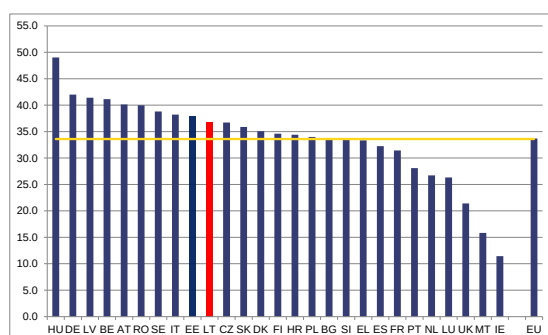
Source: European Commission

Taxes on capital are considerably lower than the weighted average for the EU (14.4 % in Lithuania compared with 21.2 % of total taxation in the EU in 2014). Given the lower share of taxes on labour compared with the EU average (46.8 % compared with 50.5 % of total taxation in the EU), revenues from taxes on consumption account for a sizeable share of total tax revenues in Lithuania. In 2014, the figure was 38.9 % – the eighth highest among EU Member States.

Shifting taxation towards more growth-friendly revenue sources and away from low-skilled labour may increase work incentives and support household consumption. The tax wedge, which measures the difference between the total labour costs to employ a worker and the worker's net earnings, for a single person earning 50 % of the average wage remains relatively high, weighing on economic activity and employment. At 36.8 % it is above the GDP-weighted EU average (33.7 %), which is itself often considered to be too high (Graph 2.1.3). This challenge has also been identified in the Commission's recommendation for a Council recommendation on the euro area's economic policy.

At the same time, taxes least detrimental to growth such as recurrent property taxation or environmental taxation are low. In 2014, recurrent taxes on immovable property accounted for tax revenues in Lithuania of 0.3 % of GDP (the GDP-weighted EU average was 1.6 %). Revenues from environmental taxation, as a percentage of GDP stood at 1.7 % in 2014, noticeably below the EU average of 2.5 % in 2014. Lithuania is among the few Member States without any form of private passenger car taxation or road-use tax for private passenger vehicles. In addition, the emissions of newly registered cars in Lithuania are well above the EU average and Lithuania has a large proportion of old cars in its existing car fleet ⁽¹⁾. In 2015, the Ministry of Environment carried out a feasibility study to investigate the possibilities of introducing car taxation on private passenger cars. Otherwise, a landfill tax and excise duties on natural gas (used as a heating fuel) have been introduced from January 2016.

Graph 2.1.3: Tax wedge on labour, single person earning 50 % of the average wage (2014)



(1) No recent data available for Cyprus.

Source: European Commission

In 2015, Lithuania implemented measures to reduce the high tax wedge for low income earners. However, the overall shift of the tax burden towards other sources less detrimental to growth remains limited. Lithuania has approved measures to increase the non-taxable personal income threshold from EUR 166 to EUR 200 per month starting from January 2016. The

government also adopted measures to increase the tax-exempt amount for dependent children and disabled individuals. While these measures apply to the majority of tax payers, low income earners are set to benefit most from them. However, the revenues to finance them remain unspecified. On the taxation of capital income, Lithuania reduced the tax exempt amount on a number of financial assets and has also adopted measures to prolong the retention period for real estate other than dwellings (from 5 to 10 years). However, a significant tax shift towards sources less detrimental to growth has, so far, not been envisaged.

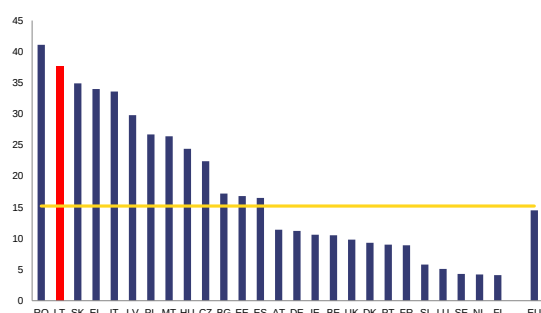
Tax compliance

Improving tax compliance, in particular in indirect taxation, remains a major challenge for Lithuania.

Although indicators for the administrative cost of tax collection and the taxpayer's compliance costs are both below the EU average, significant tax revenues are lost due to tax evasion and tax avoidance. An EU-wide study conducted by CASE/CBP (2015) found that Lithuania has a particularly high level of non-compliance and non-collection of VAT. The VAT compliance gap is one of the indicators used to measure the effectiveness of VAT enforcement and compliance measures. It calculates the difference between the theoretical tax liability under the law and the VAT revenue actually collected. As shown in Graph 2.1.4, the estimated VAT compliance gap in Lithuania is the second highest in the EU at 37.7 % in 2013. It is also considerably higher than the EU average of 15.2 %.

(1) New passenger car missions are 135.82 g CO₂/km compared with the EU average of 123.40 g CO₂/km (Source: European Environment Agency, 2014, provisional values). The average age of passenger cars in Lithuania is around 15 years compared with seven to eight years in the EU (Source: DG ECFIN Country Focus, Vol. 12, 2014).

Graph 2.1.4: VAT compliance gap as % of the theoretical VAT liability (2013)



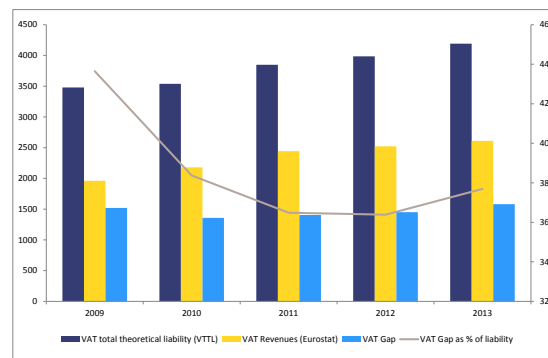
(1) No recent data available for Croatia and Cyprus.

Source: CASE/CPB (2015)

Improving tax compliance remains important to increase the fairness of the tax system. Tax compliance can generally be improved through national measures such as targeted support to businesses and improving tax collections by having inspections on the basis of risk assessment. Lithuania is implementing a consolidated taxpayers compliance and tax collection strategy for the period 2014-2017.

In May 2015, the country introduced a systematic cross-check of VAT invoices to identify risky transactions. In addition, an advanced tax administration information system will be installed in 2016. Indirect tax revenues have increased since May 2015, but it is, however, too early to assess if this has been the result of the measures introduced or other factors such as strong domestic demand.

Graph 2.1.5: VAT compliance gap trend



Source: CASE/CPB (2015)

Fiscal framework

Lithuania strengthened the binding character of its medium-term budgetary framework, but certain weaknesses remain. As Lithuania joined the euro area in 2015, the rules of the Fiscal Compact entered into force and Lithuania raised the structural balance rule to the level of a constitutional law. Nevertheless, as already observed in the Country Report of February 2015, Lithuania's fiscal framework presents some weaknesses concerning its clarity and adherence to the adjustment path towards the medium-term budgetary objective. These undermine its credibility. Further strengthening adherence to multiannual targets and refining well-defined and transparent revenue and expenditure rules are crucial in effectively steering public sector size, preventing pro-cyclical spending, and limiting the use of windfall revenues.

The National Audit Office was formally granted the function of budget policy monitoring institution (i.e. 'fiscal council') from 1 January 2015. Since then, the fiscal council has provided its expert opinion on the economic development scenario in line with the endorsement process agreed upon in a memorandum of understanding between the Ministry of Finance and the National Audit Office. In its assessment of the draft state budget for 2016, the fiscal council considered that:

- the surplus general government sector rule is not ensured;
- a reduction of public debt is not secured;

- the medium-term budgetary objective should be made more stringent, i.e. from -1 to -0.5 percent of GDP.

The National Audit Office has a long standing reputation as a body that is independent from the government. However, it appears important that the Office strengthens the internal organisational arrangements specific to the department responsible for budget policy monitoring as this would safeguard the independent fiscal policy analysis function assigned to that department.

Public debt and the overall fiscal sustainability

Ensuring long-term fiscal sustainability requires tackling the budgetary impact of population ageing, in particular on pensions and long term care. Over the medium- and long-term, Lithuania's government debt is expected to reach 40.9 % of GDP by 2019 and is set to rise to 51.0 % of GDP in 2026. This is 7.3 percentage points above its 2015 level, but still below the reference value of 60 % of GDP. Further deteriorations are expected beyond 2026 due to unfavourable projected age-related expenditure.

While there are no fiscal sustainability problems in the Lithuanian health system in the medium or long-term, Lithuania could support sustainability going forward by linking expenditure increases to improvements in cost-effectiveness.

However, rapid ageing constitutes a risk to the long-term fiscal sustainability of Lithuania's pension system. Lithuania allocated one third less resources to pensions than the EU average in 2013 (7.2 % of GDP in Lithuania compared with 11.3 % of GDP in the EU), but gross public pension expenditures are expected to increase to 9.4% of GDP by 2040 due to demographics⁽²⁾. The population size and its age structure will change dramatically. While life expectancy is rising steadily, low fertility rates have led to negative population growth. Meanwhile, massive emigration has exacerbated the ageing trends as the younger generations are more likely to emigrate than older generations. As a result, the

demographic old-age dependency ratio and economic old-age dependency ratio are projected to rise significantly by 2040⁽³⁾. Assuming a reduced or lower migration scenario (Graph 1.4), which in Lithuania's case entails lower outflows, does not move Lithuania into a lower risk category⁽⁴⁾. To address pension sustainability, Lithuania has been gradually increasing the statutory retirement age since 2012, aiming to reach 65 years for women and men in 2026.

There are also concerns about the medium-term fiscal sustainability of the Lithuanian long-term care system. Lithuania's expenditure on long-term care – currently at 1.4 % of GDP – is expected to increase to 1.9 % of GDP by 2030 according to the reference scenario of the 2015 Ageing Report projections⁽⁵⁾. Coverage rates, the percentage of the population receiving long-term care benefits of any type (both as a percentage of the population and of the percentage of dependents), are among the highest in the EU at 5 % and 55 % respectively. This suggests fine-tuning of the system could be advisable in order to control expenditure growth in the future, such as by targeting the benefits to those who need them the most and cannot afford to pay the long-term care related costs by themselves (see also section 2.3 for more health-related challenges in Lithuania).

⁽³⁾ The demographic old age dependency ratio is defined as the ratio of people aged 65 or above relative to those aged 15-64 (expressed in %). The economic old-age dependency ratio is calculated as the ratio of inactive elderly (65+) over total employment (15-64), again expressed in %. The 2015 Ageing Report projects that for Lithuania the old-age dependency ratio will increase from 29 % in 2015 to 32 % in 2020 and 56 % in 2040 for Lithuania; and that its economic old age dependency ratio (15-64) will increase from 42 % in 2015 to 48 % in 2020 and 81 % in 2040.

http://ec.europa.eu/economy_finance/publications/european_economy/2014/pdf/ee8_en.pdf

⁽⁴⁾ For more information see the 2015 Ageing Report (http://ec.europa.eu/economy_finance/publications/european_economy/2015/ee3_en.htm).

⁽⁵⁾ Under the risk scenario Lithuania's long-term-care expenditure is expected to increase to 2.5 % of GDP; for more details see the 2015 Aging Report.

⁽²⁾ European Commission, 2015, The 2015 Ageing Report, Economic and budgetary projections for the EU Member States (2013-2060), European Economy 3/2015.

2.2. BANKING, FINANCIAL STABILITY, HOUSING MARKET

Financial and banking sector stability and access to finance

The Lithuanian banking sector is relatively small, highly concentrated and dominated by Nordic banks. Bank profitability has been restored after the crisis and financial soundness indicators are strong. Moderate credit growth and increasing local deposits contribute to the good liquidity of Lithuanian banks and foreign currency loans account for 1 % of their total portfolio. Consolidated micro- and macro-prudential supervision is exercised by the Bank of Lithuania in close cooperation with the ECB under the single supervisory mechanism.

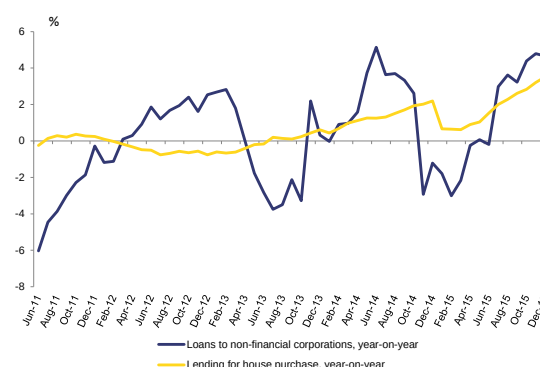
Banks are the largest financial intermediaries. Their assets amounted to EUR 25.5 billion in 2014, which represented 70 % of GDP ⁽⁶⁾. Pension funds rank second with EUR 1.7 billion (4.8 % of GDP) while insurers hold only EUR 0.9 billion (2.6 % of GDP). Pension funds' assets have been increasing rapidly and continuously since 2004 when they had EUR 44 million. In contrast, insurers' assets have been stable since 2006. Local banks and credit unions are a small part of the financial sector, but warrant close attention on the part of the supervisor in order to ensure sufficient capital buffers, commensurate risk taking and healthy governance models.

The dominance of Nordic banks in Lithuania's banking sector poses a moderate risk in the event of a shock to the Nordic banking sector itself. The possible emergence of financial stress in the Nordic banking system, for example caused by a correction in housing prices, could have some adverse impact on Lithuania's banking sector. If foreign parent banks' balance sheets were to deteriorate, they might become less able to provide further credit or may even withdraw existing financing from their Lithuanian subsidiaries, which would then have to rely on other sources. However, unless there is a considerable increase in domestic credit demand, such a situation is not expected to have a significant impact since currently the banking sector is fully able to finance credit growth with local deposits. Provided the global financing environment remains favourable, the likelihood of such a scenario would be limited.

⁽⁶⁾ Source: ECB and AMECO.

For a more detailed analysis of potential financial spillovers in the Baltic-Nordic region see the *Country Report Sweden 2016*.

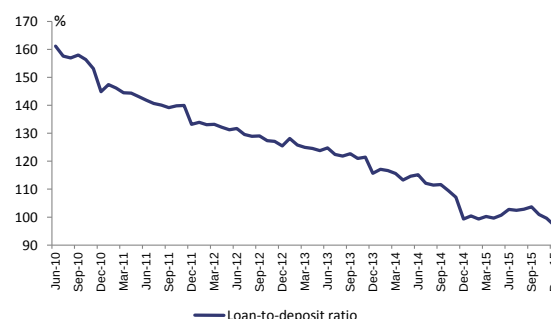
Graph 2.2.1: Banking sector's balance sheet — lending



Source: ECB

The banking sector completed its post-crisis deleveraging and lending is picking up. In the course of 2015, the outstanding loans to GDP ratio increased from 46 % at the beginning of the year to 56 % in December. Lending to non-financial corporations has been volatile in recent years, but in 2015 it grew by 4.7 % year-on-year (Graph 2.2.1). Housing loans grew 3.5 % year-on-year, gradually increasing pace since 2013. On the liabilities side, deposits increased 6.7 % year-on-year, helping the banks to strengthen their funding structure and to reduce external liabilities. The loan-to-deposit ratio, now just below 100 %, is considered sustainable (Graph 2.2.2).

Graph 2.2.2: Banking sector's balance sheet — funding



(1) Excluding claims on monetary financial institutions (MFI), government and non-residents.

Source: ECB

Table 2.2.1: Financial soundness indicators

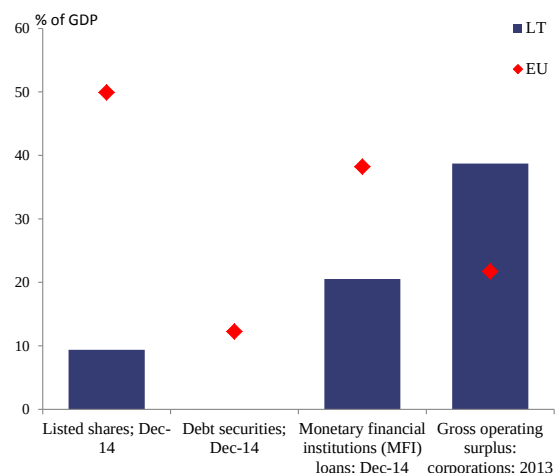
	2010	2011	2012	2013	2014	2015Q2
Non-performing loans (NPLs), %	16.1	13.4	10.9	8.5	6.5	6.4
Capital adequacy ratio (CAR), %	14.8	14.2	15.7	17.5	21.3	23.8
Tier 1 ratio, %	10.8	12.0	14.6	17.0	20.9	23.4
Return on equity (RoE), %	-3.8	15.5	7.8	8.6	7.7	3.8
Return on assets (RoA), %	-0.3	1.5	0.9	1.0	0.9	0.5
Coverage ratio	45.5	45.8	44.1	40.6	36.2	35.0

(1) Capital adequacy ratio is the share of a bank's capital over its risky assets, while the tier 1 ratio refers to a bank's core equity capital. The latter may be used as a measurement of a bank's financial strength based on the sum of its equity capital and disclosed reserves. The coverage ratio describes a bank's ability to absorb potential losses from its non-performing loans. In general the coverage ratio is defined as the differences between loans and reserves divided by the total amount of non-performing loans.

(2) The above statistics include all domestic and foreign banks (subsidiaries and branches).

Source: ECB

Graph 2.2.3: Funding of non-financial corporations



Source: ECB, AMECO

Financial soundness indicators suggest that the banking sector is stable. Banks are well capitalised and by mid-2015 the average solvency ratio increased to 24 %. Core tier 1 instruments account for the majority of the capital (Table 2.2.1). The quality of bank assets is continuing to improve. The average ratio of non-performing loans (NPL) declined to 6.4 % in June 2015 from 16 % at its peak. Loan-loss provisions covered 35 % of outstanding NPLs, which was below the average for the euro area (50 %) and the levels in Lithuania's Baltic peers. The practice of overcollateralisation of mortgage loans partly explains the low coverage ratio. Since 2011, the sector's performance on profitability has been good. In 2014, both return on equity (7.7 %) and return on assets (0.9 %) were above the average for the euro area (2.3 % and 0.1 % respectively). The

results for the first half of 2015 confirm the positive profitability trend.

The capital market is relatively underdeveloped. The debt securities market in Lithuania consists almost exclusively of government papers. On the back of the government's increased borrowing needs, mainly in the years 2009 and 2010, the total size of the market increased from EUR 5.8 billion in 2008 (18 % of GDP) to EUR 12.6 billion in 2014 (35 % of GDP). The Lithuanian stock market is relatively shallow with a capitalisation of EUR 3.5 billion or 9.5 % of GDP at the end of 2015 (down from a peak of 15 % in 2010). Non-financial corporations are the dominant issuer category. The stock market structure is fully integrated into the OMX-Nasdaq group.

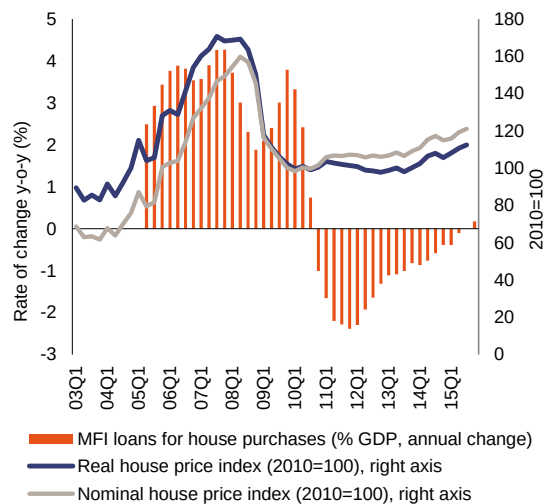
Banks play a larger role than capital markets in the funding of Lithuanian companies. The total stock of loans to corporations is equivalent to 20.5 % of GDP compared with 9.4 % of GDP for listed equity (Graph 2.2.3). The role of both funding sources is well below their respective EU averages. On the other hand, the annual gross operating surplus of Lithuanian companies is much higher than on average in the EU, suggesting that companies have a high potential to finance investment from their retained earnings.

Housing market

Lithuanian house prices fell sharply after the crisis, but have started to pick up again slightly since mid-2013. Growth in mortgage loans as a share of GDP remained negative, although the relatively less negative growth figures may also

point to a possible bottoming out (see Graph 2.2.4). In parallel, real house prices increased by 3.6 % in 2014 and 5.7 % in 2015.

Graph 2.2.4: **Changes in the real house-price index and MFI loans for house purchases**



Source: European Commission, ECB

Nominal residential investment growth was strong in 2013 and 2014. After falling sharply in 2009 and 2010, it grew in 2011 and 2012 (by 4.8 % and 5.4 % respectively). For 2013 and 2014, residential investment growth sharply accelerated to 16.6 % and 20.7 %, respectively, in line with an increase in building permits.

At the same time, indicators suggest that house prices are below their long-term averages. Based on the house price-to-income ratio (affordability), and the price-rent share (dividend), Lithuania's house prices still seem undervalued by around 30-35 %. Such calculations have to be interpreted with some caution, since they rely on the assumption that house prices revert to their long-term averages. However, they do tend to reflect the substantial decline in house prices in the past, and the only very recent rise in dwelling costs.

2.3. PENSIONS, ACTIVE AGEING AND HEALTH

Pensions and active ageing

Fair and equitable pension systems are a pivotal part of sustainable socioeconomic policy. However, adverse demographic developments and persistently high emigration rates (in particular among young people) are undermining the long-term fiscal sustainability of Lithuania's pension system (see section 2.1). Lithuania's population shrank from 3.5 million in 2001 to 2.92 million in 2015. Spending on pensions is expected to rise over the next 50 years.

Pension adequacy remains a concern. The level of poverty and social exclusion of old age pensioners (65+) stands at 31.9 %, almost twice the EU average. The gender poverty gap amongst the elderly is high, especially for the 75+ population (26.2 % for women compared with 6.9 % for men in 2014). Moreover, until now, public pensions have been raised on an ad hoc basis, without a fixed rule. As wage growth is robust, relative poverty among the elderly is increasing. On the positive side, in 2015 Lithuania started to compensate pensioners for pension cuts, which were implemented over the crisis period (2010-2011). In addition, the country slightly increased the insured income and the state social insurance basic pension ⁽⁷⁾.

Partly as a result of low pension adequacy, employees in Lithuania tend to remain active longer than in other EU countries. Both the activity and the employment rate for individuals aged 55-64 were above the EU average in 2014 ⁽⁸⁾. However, specific policy measures for active ageing such as adult learning, the adaptation of workplaces and flexibility in working arrangements are not sufficiently developed. The action plan for 2016-2020 on motivation and voluntary work of older workers was adopted in October 2015. However, the relatively small number of people targeted by the plan creates

doubts as to the potential impact of the measure ⁽⁹⁾.

A legislative proposal on a new social model envisages changes to the pension system. In particular, it proposes:

- changes in the way the basic part of the pension (the first pillar) is financed;
- introducing pension indexation rules;
- linking the pensionable age with life expectancy after 2026.

If adopted, this comprehensive reform aims to improve pension adequacy and sustainability. Since Lithuania has enacted gender-neutral pension legislation for the future, similar careers will result in equal pension outcomes for men and women from 2053.

Health

Poor health outcomes in Lithuania continue to have a negative impact on the working age population. Life expectancy at birth is below the EU average, while for men it is among the lowest in the EU ⁽¹⁰⁾. Although the death rate at working age (20 to 64 years) has been on a downward trend since 2010, it was in 2013 still the highest in the EU (Graph 2.3.1). Mortality rates before the age of 65 are estimated to reduce the workforce in Lithuania by 4.6 % when compared to its potential, estimated by using EU average mortality rates ⁽¹¹⁾.

⁽⁹⁾ The plan targets roughly 8 000 people out of 370 000 persons in that age category (55-64).

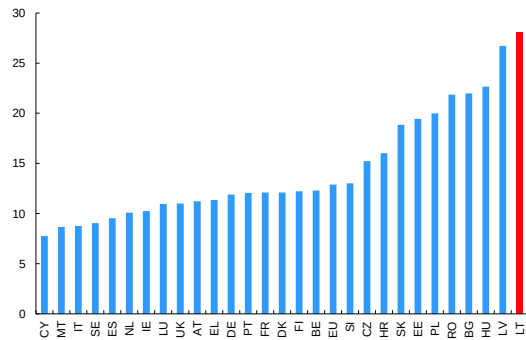
⁽¹⁰⁾ Life expectancy at birth is 68.5 years for men and 79.6 for women, whereas the EU averages are 77.8 and 83.3, respectively. Healthy life years for men are significantly below the EU average (at birth: 56.8 years in Lithuania compared with the EU-average of 61.4; at age 50: 13.9 years in Lithuania compared with the EU-average of 17.5).

⁽¹¹⁾ Source: European Commission calculations on the impact of mortality on labour force size, measured as the number of potential working life years per birth cohort, standardised for population size and age cohort mix.

⁽⁷⁾ Since January 2016 the insured income is defined as EUR 445 (EUR 434 in 2015). The state social insurance basic pension is EUR 112 (EUR 108 in 2014). These two indicators (whose amount is approved by a government decision) are included in the current pension calculation formula.

⁽⁸⁾ Employment rate 55-64: 63.0 % in Lithuania compared with 55.9 % in the EU; Activity rate 55-64: 56.2 % in Lithuania compared with 51.8 % in the EU.

Graph 2.3.1: **Mortality rate of population aged 20- 64, deaths per 1000 people, 2013**



Source: European Commission.

Lithuania's health outcomes are among the poorest in the EU, even when compared to some other countries with similarly low expenditure levels (such as Estonia, Romania and Poland). This shows that there is room to improve the efficiency of the health system. The performance of the health system could be improved by reducing the strong reliance on inpatient care and by strengthening outpatient and preventive care.

The high incidence of bribery and informal payments in the health sector in Lithuania suggests inequalities in access to healthcare. According to OECD data, around 35 % of Lithuanians reported in 2014 having given a bribe or gift in exchange for healthcare services. A Eurobarometer report showed 21 % of respondents (the second highest percentage in the EU) claiming this ⁽¹²⁾. High levels of out-of-pocket payments are reported, in particular for pharmaceuticals ⁽¹³⁾: this could jeopardise access to necessary healthcare for vulnerable groups. Against this background, the government is prioritising the healthcare sector in its anti-corruption programme. One of the options it is looking at is the introduction of electronic methods in order to achieve more transparent funding. A recent reform seeks to make decisions on drug reimbursement simpler and more

transparent. A Code of medical professional ethics, signed in May 2015, requires doctors to refuse direct or indirect gifts and to avoid conflict of interest in commercial dealings.

Lithuania is working to strengthen long-term care. As society ages, and employment rates rise, there will be an increasing demand for long-term care services. With the help of EU funds, Lithuania is putting in place and modernising its long-term care infrastructure (such as day care centres), establishing new community-based care homes for the elderly and developing the provision of social and nursing care at home. The establishment of an efficient and effective long-term care system will require close coordination between the Ministry of Health and the Ministry of Social Affairs.

On 1 June 2015, the Lithuanian National Electronic Health System was launched. If it becomes fully operational, it may improve the efficiency and quality of healthcare, and make it easier for different institutions to exchange data.

⁽¹²⁾ Source: OECD (2014) Lithuania: Fostering open and inclusive policy making, OECD Public Governance Reviews, OECD Publishing, Paris; Special Eurobarometer 397: Corruption – published in 2014, based on surveys in 2013.

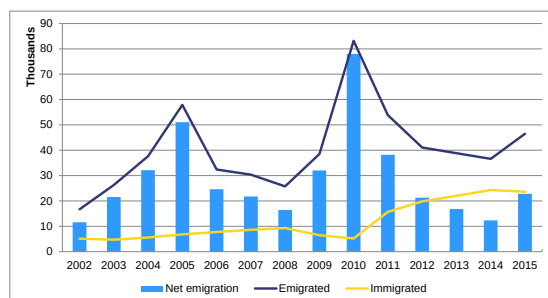
(13) See Murauskienė, L., Janonienė, R., Veniute, M., van Ginneken, E., Karanikolos, M. (2013) Lithuania: Health System Review. *Health Systems in Transition*, 15(2): 1-150.

2.4. LABOUR MARKET, COST COMPETITIVENESS AND SOCIAL POLICIES

Labour market and social policies

In 2015, the labour market improved, supported by a growing economy and a sizeable decline in the working-age population. The employment rate (15-64) increased from 63.7 % in 2013 to 65.7 % in 2014, surpassing the EU average of 64.9 %. This positive trend continued in 2015. Unemployment which stood at 10.7 % in 2014 has fallen to 9.1 % in 2015 (Graph 1.5). Nevertheless, the unemployment rate remains above its pre-crisis level (8.4 % in 2007). Moderate but steady GDP growth was instrumental in this decline in unemployment. However, a 0.8 % decline in the labour force in 2015 also played a role: roughly 1.1 percentage points of the fall in the unemployment rate was due to jobs growth and 0.5 percentage points was due to a shrinking labour force. Persistent net emigration (Graph 2.4.1) and ageing are the main drivers behind the declining working age population and hence a shrinking labour force.

Graph 2.4.1: Emigration trends



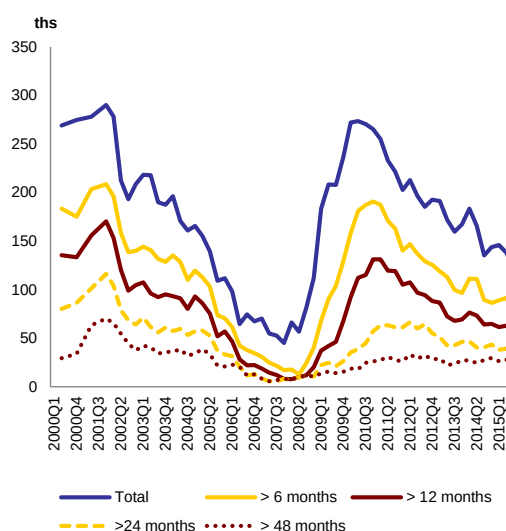
Source: Statistics Lithuania

Low- and medium-skilled individuals face a relatively high risk of unemployment. The unemployment rate for high-skilled individuals is among the lowest in the EU (4.2 % in Lithuania compared with 6.1 % in the EU in 2014). However, for medium-skilled individuals it is significantly above the EU average (13.5 % in Lithuania compared with 9.4 % in the EU in 2014); and for low-skilled individuals it is among the highest in the EU (29.8 % compared with 18.5 % in the EU in 2014). Similar trends can be observed in employment rates. Lithuania has one of the highest skills mismatches among EU countries⁽¹⁴⁾. The crisis exacerbated this problem

⁽¹⁴⁾ Skills mismatch is measured as dispersion of employment rates across education levels. See Kiss, A. and Vandeplas,

by destroying jobs, particularly in the construction sector. In response, the population is rapidly upskilling – i.e. early school leaving rates are declining and tertiary attainment is significantly increasing (see section 2.5).

Graph 2.4.2: Unemployment by duration, in thousands

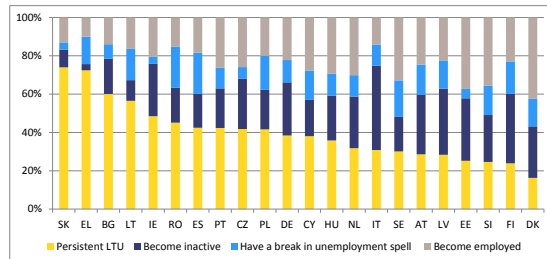


Source: European Commission

While long-term unemployment continues to decline, very long term unemployment (i.e. more than 48 months) remains high (Graph 2.4.2). Long-term unemployment (12 months or more, age group 15-74) in Lithuania stood at 4.8 % in 2014. This was below the EU average of 5.1 % but considerably above the 2008 figure of 1.3 %. There is a considerable rural-urban gap: in 2014, long-term unemployment was 7.8 % in rural areas, compared with 3.9 % in urban areas. The share of the long-term unemployed in 2013 who remained unemployed in 2014 was above 50 % (Graph 2.4.3).

A. (2015) Measuring skills mismatch. DG EMPL Analytical webnote 7/2015.

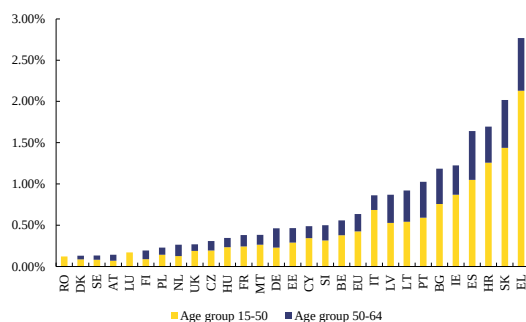
Graph 2.4.3: Labour market status in 2014 of those who were in long-term unemployment in 2013



Source: Preventing and Fighting Long-Term Unemployment, in: Employment and Social Developments in Europe (ESDE) 2015

Compared with other countries, a very low share of long-term unemployed in Lithuania becomes inactive as financial incentives to remain active are high. At the same time, very long-term unemployment (48 months or more) increased from 0.86 % in 2013 to 0.92 % in 2014 (EU-average: 0.64 %, Graph 2.4.4). Despite a tight and in practice relatively flexible labour market, this increase may point to a lack of skills and qualification among the very long-term unemployed. Obsolescence of skills may play a role, as 42 % of this group are 50 years or older.

Graph 2.4.4: Very long-term unemployment (more than 48 months) as a percentage of the working age population (15-64), 2014

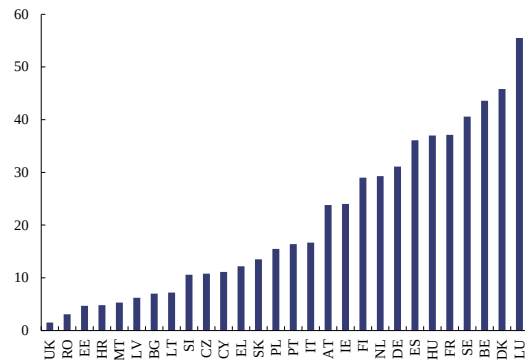


Source: European Commission

Although Lithuania's spending on active labour market policies (ALMPs) and their coverage increased in 2015, they remain low compared with the rest of the EU. In 2013, only 7.2 % of those looking for work took part in ALMPs (Graph 2.4.5). Spending on, and participation in ALMPs declined between 2013 and 2014, before

increasing again in 2015 ⁽¹⁵⁾. Spending on the provision of vocational training and of employment subsidies increased in particular.

Graph 2.4.5: Activation - ALMP participants per 100 persons wanting to work

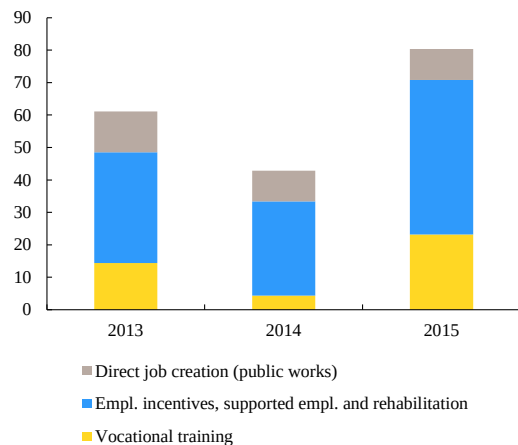


Source: European Commission (latest figures available)

Compared with other EU countries, a relatively large share of the ALMP budget is spent on subsidised employment measures. The number of subsidised employment posts decreased in 2015 compared with 2014, while the spending on these measures increased (Graph 2.4.6). In 2014, the ceiling on employment subsidies was increased from one to two monthly minimum wages, covering at most 50-70 % of the labour cost, depending on the participant type. The duration also depends on the target group, ranging from six months for some groups to an indefinite duration for disabled persons. Employment subsidies are provided to a relatively broad target group (e.g. including disabled people, single parents, the long-term unemployed, and individuals over 50 or under 29). There are not many rules in force to prevent abuse or crowding out of regular employment, except that employers who dismiss workers less than six months after the end of a subsidy regain eligibility for a new subsidy only 12 months after the end of the previous one.

⁽¹⁵⁾ Source: National statistics on ALMPs, shared by the Lithuanian Ministry of Social Security and Labour.

Graph 2.4.6: Total spending on major ALMPs (million EUR)



(1) Employment incentives, supported employment and rehabilitation schemes include measures such as employment subsidies, professional skills acquisition in the work place, job rotation, job creation measures, local employment initiatives, and support for self-employment.

Source: European Commission

Participation in public works declined slightly, but remains the main action provided by the public employment service. Participation in public works accounts for around one third of all persons involved in ALMP measures. All unemployed people and employees who have been notified of dismissal, students during leave and part-time employees in enterprises facing economic difficulties can take part in public works, but not for more than six months per year. However, participation in public works has generally been relatively ineffective in sustainably reintegrating people into the labour market.

While the delivery processes of active labour market policies improved, effectiveness and targeting remains a challenge. Changes to the law on support for employment achieved some progress. The changes targeted bilateral training opportunities, scholarships for vocational training participants, and support measures for self-employment. The European Social Fund financed project 'Support for the employment of the long-term unemployed' is targeting almost 11,000 long-term unemployed people. Other ESF-funded projects target disabled and low-skilled groups, providing them with more efficient and a wider range of better tailored services. However, Lithuania's measures do not seem to cater sufficiently to the needs of individuals who have

no professional qualification. This category accounts for about 40 % of unemployed people registered with the public employment service. Moreover, the measures do not seem to be successful in reintegrating the very long-term unemployed in the labour market. Given that staffing levels have held up while unemployment levels have fallen, the possibility of offering more intensive support to unemployed people who face greater challenges to reintegrate into the labour market could be considered. This challenge has also been identified in the Council recommendation on the euro area's economic policy.

Youth unemployment (19.3 %) and the number of people not in employment, education or training (NEET) (15-24) (9.9 %) improved in 2014. Lithuania is below the EU average in both categories. Even with high emigration levels among young people, making up more than half of all Lithuanian emigrants, youth unemployment (15-24) is still higher than before the crisis. Low-skilled young people in Lithuania face a higher rate of unemployment (39.7 % in 2014, which is significantly above the EU average of 30.3 %).

Lithuania started to implement the Youth Guarantee on 1 January 2014. According to the Lithuanian Labour Exchange, in 2014, out of nearly 95,000 young people (under 29) registered with the public employment service 43 % were in employment after four months, 15 % were participating in ALMP measures, and 7 % were self-employed. Preliminary results on the Youth Guarantee for 2014 point to a substantial share (41.6 %) of all Youth Guarantee participants who return to unemployment six months after exiting the Youth Guarantee service phase. Of those involved in ALMP measures, most (74 %) were in subsidised employment programmes. It is important to further assess the quality and long-term sustainability of the Youth Guarantee outcomes.

Outreach, especially to those furthest away from the labour market, remains a challenge. Most young people who are not in education, employment or training are not registered with the

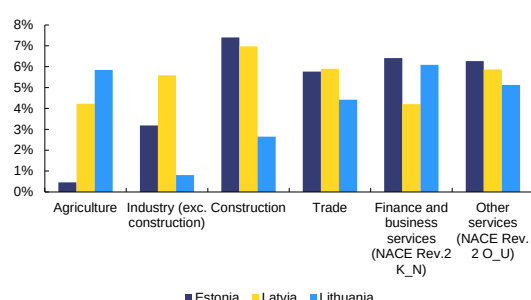
public employment service⁽¹⁶⁾. It remains to be seen if the new NEET identification system, currently under development, and the recently launched targeted projects will improve the situation.

Wages and cost competitiveness

On the back of a declining unemployment rate, nominal wages increased by 5.1 % in 2015. Wage growth accelerated in 2015 compared with 2014 in a tightening labour market. Only a small part of the wage growth was due to productivity improvements. As a result, nominal unit labour costs grew by 4.4 % in 2015. Productivity growth has stagnated in recent years (Graph 2.4.8).

Falling prices pushed real wage growth to 5.8 % in 2015. So far, it seems that increasing costs from higher wages have not had a significant impact on cost competitiveness in the tradable sector. A sectoral breakdown of nominal unit labour cost growth shows that these remained very low in the manufacturing industry, which is usually considered as the main tradable sector (Graph 2.4.7). However, a certain risk may arise if wage growth continues to outpace productivity increases.

Graph 2.4.7: Annual sectoral nominal unit labour cost growth in the Baltics, 2005-2014

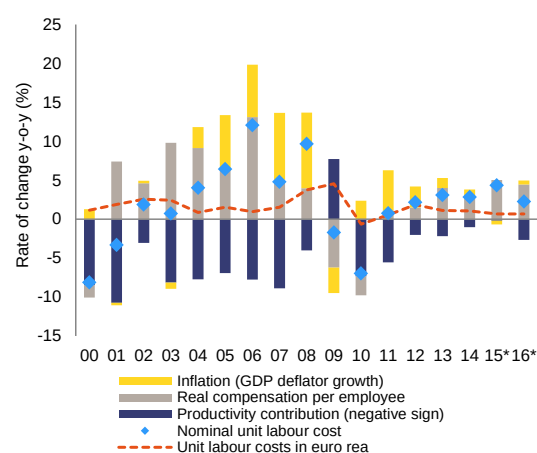


Source: European Commission

As Lithuania is a catching-up economy, stronger wage growth may be expected than in more mature economies. This can in principle be driven by productivity growth, through employment shifts towards more productive

sectors and through productivity growth within sectors. In Lithuania, despite considerable shifts across sectors (mostly out of agriculture and manufacturing, and into services), only a very small share of wage growth can be attributed to these shifts. In earlier years Lithuania also experienced high(er) inflation, resulting in stronger nominal unit labour cost growth, which is typical for a catching up economy. By contrast, in 2014 the contribution of inflation was very small (Graph 2.4.8). Finally, as nominal unit labour costs grew more strongly in non-tradable service sectors than in manufacturing (Graph 2.4.7), this could mean that the Balassa-Samuelson effect has come into play. This implies that wages in non-tradable service sectors are pushed up by wages in tradable sectors (as a result of labour mobility between sectors), in spite of the fact that productivity growth in non-tradable sectors is not as strong as in the tradable sector.

Graph 2.4.8: Trends in nominal unit labour cost growth and its components



Source: European Commission

⁽¹⁶⁾ Data provided by the Ministry of Social Security and Labour during the fact finding mission in January 2016.

Box 2.4.1: **Key features of the draft Labour Code**

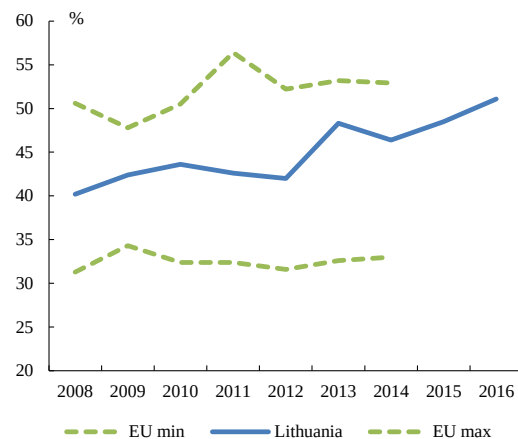
The draft Labour Code proposes to increase the flexibility of labour market relations, by:

- (a) expanding employers' rights to terminate contracts based on weak performance (subject to notice period and severance pay regulations); or based on other reasons (but subject to a higher severance pay);
- (b) reducing severance pay to one month's wages (or half of a monthly wage in case tenure is less than one year);
- (c) restricting employees' current flexibility to terminate their employment contract on their own initiative;
- (d) reducing the notice period to one month or 10 working days in case tenure is less than a year except for some specific groups of workers (e.g. those who are close to retirement), for whom a higher notice period applies.

It also envisages an increase in security, as it proposes to increase the duration of unemployment benefits to nine months (up from the current insurance-period-related duration in which only individuals with at least 35 years' experience were entitled to nine months of benefits). The benefits will be made up of a fixed and a variable component. The fixed component will amount to 30 % of the minimum wage. The variable part will decline over time, and amount to 50 % of the individual's previous salary during the first three months; 40 % during the next three months, and 30 % during the last three months. A ceiling will apply that equals 75 % of the average monthly wage as published by the Statistical Office. Individuals will be eligible if they have worked during 12 months of the preceding 24 months.

The minimum wage has been increasing relatively quickly in Lithuania. The country has had a statutory minimum wage since 1990. The current Labour Code stipulates that the minimum wage is fixed by government decision following a recommendation of the Tripartite Council, which includes representatives of the government, trade unions, and employers. Collective agreements may establish a higher sector-level minimum wage, but no use of this mechanism has so far been made. The minimum wage increased by 25 % from 2008 to 2014, from EUR 232 to EUR 290. In 2014, the minimum wage stood at 46.4 % of the average monthly earnings in the business sector (Graph 2.4.9). In 2015, it was raised twice: first to EUR 300 on 1 January, then to EUR 325 on 1 July. In 2016, it has been further increased to EUR 350. Based on the provisional data published by Statistics Lithuania, after the latest rise, the minimum wage will represent about 50 % of average monthly earnings in the business sector, approaching the upper levels in the EU. While minimum wage growth is expected to have a positive impact on consumption by minimum wage recipients and hence on economic growth, a high ratio of the minimum wage relative to average wage carries a risk that low-skilled workers will be priced out of the labour market.

Graph 2.4.9: **Minimum wage as a % of average monthly earnings in the business sector**



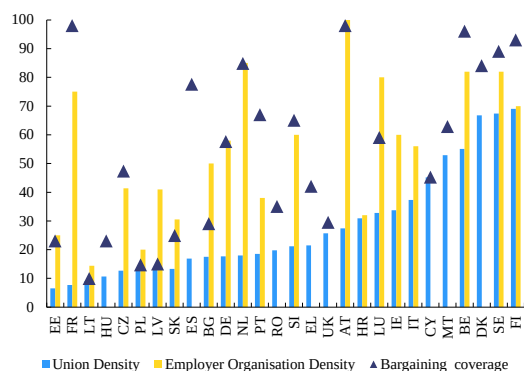
(*) Average monthly earnings for 2015 and 2016 based on Commission 2016 Winter Forecast.

Source: European Commission

The upcoming labour market and social policy reforms envisage a shift towards more flexibility in the labour market (Box 2.4.1). However, they do not consider an increase in the adequacy and coverage of the cash social assistance system. The current Labour Code was adopted in 2002. While the key features of

employment protection legislation are similar to the EU average and with other Baltic states, the Labour Code is considered to grant relatively strong rights to workers over dismissals (especially at an early stage of tenure), while offering only limited income protection during unemployment spells. Moreover, derogations from relatively strict legal provisions on working time arrangements are only possible through collective agreements.

Graph 2.4.10: Union and employer organisation density, bargaining coverage



(1) Union density is calculated as net union membership as a proportion of wage and salary earners in employment. Employer organisation density is calculated as the proportion of wage and salary earners in firms organised in employers' organisations. Bargaining coverage measures the % of employees covered by collective wage bargaining agreements as a proportion of all employees with the right to bargaining.

Source: Visser (2015) ICTWSS database

Social dialogue is relatively weak. Collective agreements hardly play any role. Only a minority of employees (some 10 % in 2012) are covered by a collective agreement. Union density (9 % in 2012) and employer organisation density (14.4 % in 2012) are also low (Graph 2.4.10). The draft law on labour relations, currently being discussed in the parliament is expected to address the weaknesses of the dialogue between social partners and the government, and to take account of the views of social partners when assessing the risks and opportunities offered by the new rules. To improve the quality of the social dialogue, the European Social Fund can be used to build capacity of the social partners.

Poverty and social exclusion

The share of the population at risk of poverty or social exclusion declined from 30.8 % in 2013 to 27.3 % in 2014. This development was mainly driven by a reduction in the share of the severely materially deprived population, and of those living in low work intensity households (Graph 1.7). With 804,000 individuals remaining at risk of poverty or social exclusion, the national Europe 2020 strategy poverty target of less than 814,000 has been reached. Most of this improvement was driven by favourable macroeconomic conditions and demographic developments, rather than by policy actions targeting the poor. Lithuania is among the most unequal countries in the European Union⁽¹⁷⁾, and the risk of poverty is increasing for the unemployed, the elderly, single parents, and people with disabilities⁽¹⁸⁾. The share of the very poor among the population (i.e. those with income below 40 % of average disposable household income) stands above the EU average and is increasing⁽¹⁹⁾.

The social safety net is weak. The adequacy of the social safety net is among the lowest in the EU for the short-term and long-term unemployed and for social assistance recipients (see Graph 2.4.11). Unemployment benefits have a fixed part - the state-supported income level (currently EUR 102) and a variable part that equals 40 % of former earnings during the first three months and 20 % of former earnings afterwards. Unemployment benefits are capped at EUR 311.5 per month, while the average wage in 2014 was twice as high. In addition, the coverage of unemployment benefits (about 20 %) is relatively low. This may be explained by the relatively strict qualification requirement. Individuals are only eligible for unemployment benefits if they have worked for at

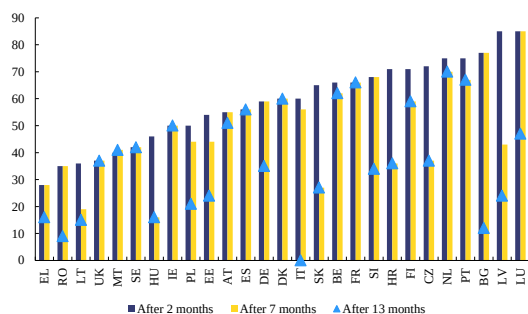
⁽¹⁷⁾ The S80/S20 income quintile share ratio (the ratio of total income received by the top quintile over that received by the bottom quintile) is among the seven highest in the EU in 2014; the Gini coefficient of equivalised (i.e. per adult equivalent) disposable household income is the fourth highest in the EU and increasing.

⁽¹⁸⁾ In 2014 at risk of poverty rate (AROP) increased compared to 2013 for unemployed from 61 % to 62.6 %, for elderly – from 19.4 % to 20.1 %, for single parents from 42.8 % to 46 % , for people with disabilities from 21.7 % to 24.8 % (2012-2013).

⁽¹⁹⁾ i.e. for single parents - from 17.9 % (2013) to 21 % (2014), vs EU 11.2 %; for unemployed - from 33.4 % (2013) to 37.3 % (2014) vs EU 21.8 %, for children from 8.7 % (2013) to 9.3 % (2014), vs EU 7.9 %.

least 18 of the preceding 36 months. Cash social assistance (i.e. the guaranteed minimum income scheme) provides a top-up to household income to reach the state-supported income level, which declines over time for working age individuals. The state-supported income level has not been increased since 2008, and its monetary value decreased relative to the at-risk-of-poverty threshold for a single person from 47 % in 2012 to 42 % in 2014. For a household with two adults and two dependent children, the state-supported income level decreased from 71 % in 2012 to 64 % in 2014 ⁽²⁰⁾. The challenge to build modern social protection systems that support those in need and provide incentives for labour market integration has also been identified in the Commission's recommendation for a Council recommendation on the euro area's social and economic policy.

Graph 2.4.11: Adequacy of social safety net systems (2014)



(1) Adequacy is measured as Net Replacement Rates (including unemployment benefits, housing benefits and social assistance) for a single person at the average wage.
Source: European Commission

Following a pilot stage, a reform to decentralise the management of the cash social assistance scheme was rolled out to all municipalities in 2014 and 2015. Available data point to a significant fall in social assistance benefit spending and in the number of recipients since the reform. The impact of this reform on poverty reduction needs to be carefully monitored to ensure that people leaving the scheme are no longer in need of such assistance. Under the current rules, there is a risk that some recipients may be excluded from the scheme even though they potentially still need support, for example due to the progressive

reduction of cash social assistance benefits over time. The in-work benefit scheme only supports a small, though slightly increasing, share of those leaving social assistance ⁽²¹⁾. In addition, the decentralisation of the scheme may lead to regional management differences among local administrations, which may lead to regional inequalities. More evidence is also needed to verify accessibility and the effectiveness of the activation measures proposed to cash social assistance recipients. Involvement in 'socially useful activities' ('*visuomenei naudinga veikla*') is intended to prevent undeclared work and to activate social assistance beneficiaries by improving their social inclusion in the community. However, the impact on their employability is not clear. Moreover, beneficiaries are not adequately insured against accidents while carrying out these activities. The upcoming social policy reforms being discussed in the parliament are expected to increase the coverage and adequacy of unemployment benefits. However, the reform does not foresee any changes to the adequacy and coverage of the cash social assistance benefits, which remain a challenge.

⁽²¹⁾ Source: Ministry of Social Security and Labour.

⁽²⁰⁾ According to calculations by the authors of the draft 'Social model', this amount was more or less adequate only for the rural population in 2007.

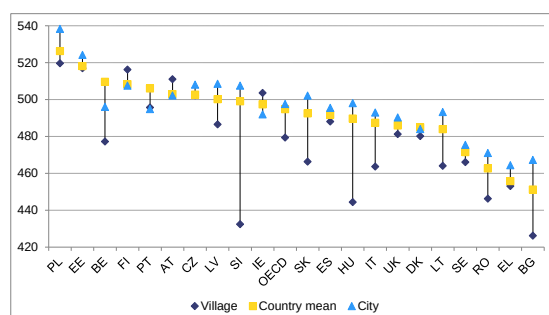
2.5. EDUCATION AND SKILLS

Learning and educational achievements

Educational outcomes are improving but important shortcomings remain in pupils' basic skills and the quality of teaching. Due to a lower drop-out rate among young males, early school leaving decreased to 5.9 % in 2014, one of the lowest rates in the EU. Tertiary attainment among the 30-34 year olds increased from 51.3 % in 2013 to 53.3 % in 2014.

In 2012, the Programme for International Student Assessment (PISA) results showed that Lithuania's share of low achievers in reading and maths was above the EU-average and particularly high for boys, and for children in rural areas. National statistics also show a high drop-out rate in vocational education and training. In 2017, a national system for evaluating school students' learning outcomes in general education will be fully rolled out after a pilot scheme in 2014.

Graph 2.5.1: **Mean mathematics performance, by school location, after accounting for socioeconomic status**



Source: Figure II.3.3 PISA 2012 Results: Excellence through Equity (Volume II): Giving Every Student the Chance to Succeed

Ensuring high quality teaching is crucial to tackling underachievement and educational shortcomings. Obligatory in-school practice during teachers' initial training is limited, and there is no formal induction programme for newly qualified teachers. Innovative teaching methods remain underutilised, and there is limited reward for good quality teaching⁽²²⁾. Furthermore, the teacher population is ageing and the teaching profession is unattractive for students, which may

⁽²²⁾ Trumpos 2014 metų Nacionalinio mokinių mokymosi pasiekimų tyrimo išvados (Short Conclusions of National research of students' achievements in 2014).

result in future shortages of teachers, for example in physics and chemistry⁽²³⁾. In primary school, 37.1 % of all teachers are older than 50; in secondary school the share is 42.4 %. When compared with GDP per capita, teacher salaries are the lowest in the EU⁽²⁴⁾. To address these challenges, Lithuania put in place an action plan for general education 2014-2016, which includes measures to improve the competences and qualifications of its teaching staff. Implementation is ongoing and expected to be fully rolled out by 2017. Salaries of teachers were recently increased by 3 %, and teacher development will also receive support from the European Social Fund.

Participation in early childhood education and care is low⁽²⁵⁾. The participation of four-year-olds in early childhood education and care was 86.5 % in 2013, below the EU average of 93.1 %⁽²⁶⁾. According to Statistics Lithuania, the difference in participation rates for children living in urban and rural settlements is 50 percentage points (participation is 92.2 % in urban areas, and 42.8 % in rural areas). Since the financial means available for teaching vary across municipalities, regional differences in teaching coverage and quality are being exacerbated. In some rural areas, adequate transport services to early childhood education and care facilities are lacking.

Important steps are being taken towards improving access to early childhood education and care. Participation in pre-primary education is

⁽²³⁾ Source: Bendrojo priėmimo į Lietuvos aukštąsias mokyklas 2015 m. apžvalga (the Overview of the Admission to Higher Education Schools in 2015), Research and Higher Education Monitoring and Analysis Centre (MOSTA): Lietuvos švietimo taryba, Dėl pedagogų rengimo politikos tobulinimo (the Lithuanian Education Council, Improvement of Teachers' Training Policy), 2015.

⁽²⁴⁾ The basic gross statutory salary of teachers in lower secondary education in Lithuania as a share of GDP per capita was the lowest in the EU in 2014/15 (minimum salary: 32.3 %, maximum salary: 59.4 %). Between 2009 and 2014, the minimum basic statutory salary of teachers was frozen in real terms (Source: Eurydice (2015) Teachers' and School Heads' Salaries and Allowances in Europe 2014/2015).

⁽²⁵⁾ Early childhood education and care includes children from the age of four to the starting age of compulsory education, which is seven years.

⁽²⁶⁾ Evidence from the *Progress in International Reading Literacy Study* (PIRLS, 2011) indicates that students who have spent longer periods of time in early childhood education and care are better prepared to enter and succeed in primary education.

compulsory for all six-year-olds from 2016⁽²⁷⁾. The government has also allocated more financial resources to create 6,000 preschool and pre-primary places, and to modernise the country's childcare and educational infrastructure, which is scheduled to provide roughly 112,300 places by 2020. The government also adopted new requirements for teachers' qualifications in early childhood education and care in 2014.

Lithuania's employers report problems in finding job candidates with the necessary or matching skills⁽²⁸⁾. In particular, the ICT, transport and logistics, manufacturing and health care sectors report significant shortages⁽²⁹⁾. While part of these are probably related to the working conditions and wages offered, labour supply has in general considerably declined as a result of a shrinking working age population and high emigration rates, in particular over the crisis period. Employers also report that graduates lack soft skills such as critical thinking, problem solving and teamwork⁽³⁰⁾.

The government has set up vocational education and training (VET) programmes to improve the quality of the labour force. The 2014-2016 action plan for the development of vocational training envisages more on-the-job training, a broader range of apprenticeship programmes and modular vocational education and training provision. Nevertheless, the alignment of current VET programmes with the labour market's needs remains weak and social partners are only marginally involved. A better alignment would, for example, include the design of occupational and sectoral qualification structures, joint labour market projections or a suitable curriculum development.

⁽²⁷⁾ Under the Ministry of Education and Science's 2015-17 strategic action plan. The legislative proposal has been presented to parliament, but implementation has been postponed until September 2016 due to an insufficient number of school places in some municipalities.

⁽²⁸⁾ Eurofound (2013) Third European Company Survey.

⁽²⁹⁾ European Commission (2014) Country fiche – Overview report: Mapping and Analysing Bottleneck Vacancies in EU Labour Markets – Lithuania. DG EMPL.

⁽³⁰⁾ MOSTA (2014) Studijų kokybė Lietuvoje: suinteresuotų šalių požiūris (Quality of Studies in Lithuania: Stakeholders Opinion).

Participation in adult learning remains stagnant at a low level (5.0 %) compared with the EU average (10.7 % in 2014). The adoption of the action plan for non-formal adult education is a step in the right direction. Under the action plan, funding is to be made available for financing participation, raising awareness and developing training programmes. While public financing is necessary to ensure equitable access to adult learning, particularly for disadvantaged groups, a sustainable increase in participation can only be achieved if employers invest in learning and the development of permanent support structures that are independent from short-term project financing (such as co-financing schemes, quality assurance, guidance and validation systems).

Tertiary education reforms

Although tertiary attainment is high, tertiary education shows weaknesses in quality and innovation outcomes. Inefficient public funding schemes for higher education lead to difficulties in attracting foreign experts and steering local talent into academia. Innovative teaching methods are hardly used and low salaries and high work load⁽³¹⁾ have an impact on teaching quality. The systematic development of teaching staff competences is not ensured⁽³²⁾. Internationalisation is low, since most degrees are taught in Lithuanian. At the same time, collaboration with foreign universities and research centres is limited.

Higher education and research institutions are characterised by an inefficient use of resources, leaving room for streamlining and consolidation. A recent research assessment exercise ordered by the government concluded that although Lithuania has good research infrastructure, promising PhD students and some pockets of excellence, its research system is plagued by fragmentation, overlap and

⁽³¹⁾ Almost half of lecturers work in more than one institution and their workload often exceed the workload of full-time equivalent employees, see Birute, Aleksandravičiute et al. (2014) For overview of the State of Studies in Lithuania see http://www.mosta.lt/images/leidiniai/Lietuvos_studiju_bukles_apzvalga_2014.pdf

⁽³²⁾ Lietuvos studijų būklės apžvalga 2015 (Overview of the State of Studies in 2015 in Lithuania), MOSTA: <http://www.mosta.lt/leidiniai>.

duplication⁽³³⁾. This may contribute to an inefficient allocation of human and physical resources and prevents Lithuania from reaching the critical mass of R&D capacity needed to boost the country's innovative knowledge niches. In addition, the university and research system remain largely closed to talent from abroad, which deprives Lithuania of a potentially important resource that would improve its research and innovation performance⁽³⁴⁾.

Universities and research institutes are mostly dedicated to teaching and basic research, and lack clear incentives for innovation and cooperation with business. The low commercialisation rate of public research results⁽³⁵⁾ is influenced by a lack of entrepreneurial endeavour and insufficient technology transfers to the real economy. The university sector lacks an adequate incentive system. Such a system would include

- performance based research funding (e.g. more focus on the research outcomes);
- the inclusion of science-business mobility as a criterion in researchers' career plans;
- a more systematic approach to developing university intellectual property rights policies;
- easier access to public research funding, and entrepreneurial training.

Amendments to the law on higher education and research are currently being discussed in the parliament. The aim of the law is to boost the quality and labour market relevance of higher education. The draft law envisages minimum admission standards for all universities and compulsory pre-entry career guidance. Furthermore, the draft law provides for more cooperation on curriculum development with social partners, and the expansion of work-based

learning opportunities in tertiary education. New pathways will be opened up from professionally-oriented programmes towards traditional master's programmes. However, the draft law does not address the overall poor research outcomes, and in particular does not make provision for any consolidation of the highly scattered university landscape.

A graduate tracking system to observe the labour market outcomes of higher education graduates is under development and could be used for higher education planning in the future.

⁽³³⁾ MOSTA (2015) Research Assessment Exercise.

⁽³⁴⁾ As a possible measurement for internationalisation, Lithuania's connection to global R&D and innovation networks remains below the OECD median (International co-authorship and co-invention, OECD, 2014).

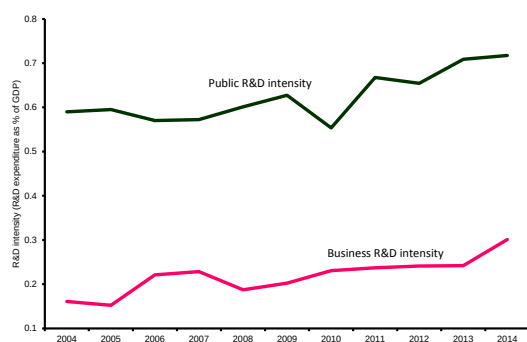
⁽³⁵⁾ In the Innovation Union Scoreboard 2015 Lithuania has a low score in Patent Cooperation Treaty patent applications: 0.34 (the EU average is 3.78).

2.6. INNOVATION AND ABSORPTIVE CAPACITY

Research and innovation

Lithuania's transition to a more value-added economy continues to be impeded by an inadequate and fragmented research and innovation (R&I) policy, and by weak governance systems. While public funding for R&D has reached the EU average, business R&D intensity is still lagging behind (Graph 2.6.1) ⁽³⁶⁾. The overall cooperation between businesses and universities or public research organisations remains below the EU average. In 2012, public-private co-publications accounted for 7.2 per million inhabitants, placing Lithuania well below the EU average of 50.3. Only 21 % of Lithuanian researchers were employed in private business, which is far off the EU average of 48 % ⁽³⁷⁾.

Graph 2.6.1: **Change in public and private business R&D intensity**



(1) Business R&D intensity: Business enterprise expenditure on R&D (BERD) as % of GDP.

(2) Public R&D intensity: Government expenditure on R&D (GOVERD) plus higher education.

Source: European Commission

While some companies in Lithuania are at the technological cutting edge, overall the high-tech sector tends to be small and underdeveloped. This limits Lithuania's capacity for sizeable R&I investments. The high-tech sector mainly consists of a limited number of top-tier private research teams, and knowledge-based (spin-off) companies mostly in industries such as bio-pharmaceuticals and laser technologies. Moreover, high-tech firms tend to be small in size and value added, which

further limits the scope for R&I investments ⁽³⁸⁾. In addition, unlike other Member States, Lithuania lacks a network of specialised research institutes to provide technological services to SMEs for industrial research and product development.

Lithuania's public R&D infrastructure is fragmented. Moreover, the tools currently in place to support R&I investments are not sufficiently targeted at companies' needs. The R&D infrastructure is scattered across different universities, institutes, innovation clusters and science and technology parks. It also lacks clear coordination and strategic planning as responsibility is divided between two ministries. Existing company-level support-schemes are either not well known or not transparent enough. In addition, complicated application procedures, long implementation periods and insufficient flexibility limit the attractiveness of these schemes to industry.

To date, government support has mainly targeted the creation of public 'hard' research infrastructure ⁽³⁹⁾. Only a marginal share of public investments have a focus on strengthening companies' innovation capabilities by using 'soft' research infrastructure such as innovation vouchers, cluster-based knowledge sharing and connecting relevant research partners ⁽⁴⁰⁾. Limited support for soft innovation capital comes from the country's tertiary education system. It lacks research focus and internationalisation and tends to be inward-looking. This results in low scientific

⁽³⁸⁾ Lithuanian value added in high-tech manufacturing as % of total value added was 0.68 % (ranked 23rd, EU-average 1.75 %) (2013). For high-tech knowledge-intensive services the respective share was 3.10 % (ranked 27th, EU-average 5.05 %). See also JRC Science and Policy Report, 2015, Stairways to Excellence – Country Report: Lithuania (http://publications.jrc.ec.europa.eu/repository/handle/JRC_97303).

⁽³⁹⁾ Some changes are envisaged in the new EU structural funds period to strengthen the ties between science and industry, for example using the concept of industrial doctorate programmes or "joint initiatives", i.e. two or more complementary collaboration projects which involve R&D activities and aim to create market-oriented commercially viable prototypes of technologies and products with high value added.

⁽⁴⁰⁾ Innovation vouchers are financial cheques that are given to SMEs to enable them to buy services from scientists – this usually includes some development/improvement of an existing technology. There is no follow up on the precise impact of these vouchers on firms' performance.

⁽³⁶⁾ In 2014, public expenditure on R&D expressed was 0.72 % of GDP, while business enterprise expenditure on R&D (BERD) was 0.3 % of GDP, with Lithuania ranking 24th in the EU (EU average is 1.3 %).

⁽³⁷⁾ Total R&D personnel and researchers by sector as a share in total employment, based on Eurostat data.

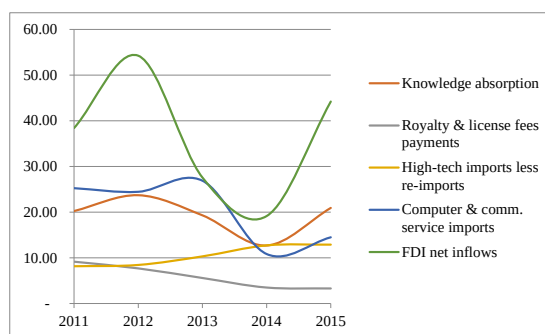
production and, in some places, in insufficient quality in human resources (see section 2.5).

Lithuanian companies face a shortage of sustainable and well-functioning financing alternatives for R&D. A major obstacle to increasing business R&D and innovation activity is the limited availability of access to finance with which to fund R&D activities, especially risky ones. Alternatives to bank financing are few (see section 2.2). Capital markets are shallow and lending institutions do not have dedicated financing instruments to support R&D activities. Funding from European structural and investment funds is one of the main financing sources for R&I projects, which raises sustainability concerns since this source is limited in time.

Absorptive capacity

Absorptive capacity, i.e. the ability of a company to identify new, external knowledge, assimilate it, and apply it to commercial ends is essential for innovation. The absorption of existing knowledge and its adaptation to production processes may already account for important innovations at firm level. These efficiency gains may not be well captured when looking at patent counts or R&I investments.

Graph 2.6.2: Absorptive capacity index and sub-components, Global Innovation Index (GII) scores



(1) The times series above were normalised to a range of 0 to 100, with the best performing country showing values close to the upper ceiling.

Source: WIPO, INSEAD, Johnson Cornell University

Recognising the value of foreign technical knowledge and assimilating existing technologies may be even more important for low- to medium-value added economies, such as Lithuania. As Lithuania is not among the

technological leaders in many markets, its companies may benefit relatively more from efficiency gains stemming from, for instance, the licensing of existing technologies or improving business processes than from spending sizeable funds on R&D activities, and/or developing new patents.

R&D innovation is mostly pursued by firms in those industries or market niches where technological opportunities are larger and the knowledge base is more closely linked to natural or engineering sciences. In Lithuania, this is only the case in a small number of niche industries (e.g. biopharmaceuticals, lasers). In other areas, firms are less likely to invest in research than in the modification of products or processes.

Considering the limited R&D capacity of most Lithuanian companies, demand for technology upgrading and the acquisition of competences to move up the value chain should be high. From this perspective, technology upgrading can be viewed as a first step towards innovation.

The ability to absorb and adapt external technical knowledge can indirectly be measured by using four standard components, which all refer to an inflow of foreign knowledge, in the form of intellectual property rights, technology or investment ⁽⁴¹⁾:

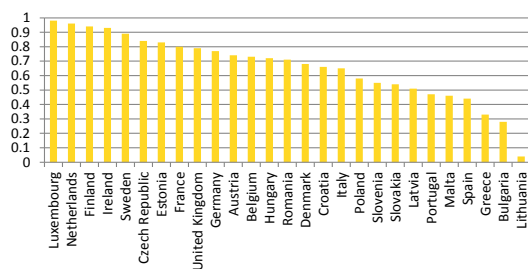
- royalty and licence fees payments (including franchises and similar rights) expressed as a percentage of total trade;
- high-technology imports minus reimports (% of total trade);
- communication, computer and information services imports (% of total trade);

⁽⁴¹⁾ This is based on data collected from World Intellectual Property Organisation (WIPO), INSEAD Business School, and Cornell University, which regularly publish a global innovation index (GII). See <https://www.globalinnovationindex.org/content/page/GII-Home>. In 2015, the indicator was built for 141 economies, which were selected on the basis of data availability. The indicators for the global innovation index (GII) were determined jointly with the Joint Research Centre (JRC). The JRC audit unit also assessed the robustness of the GII modelling choices.

- foreign direct investment (FDI), net inflows (in % of GDP) ⁽⁴²⁾.

Based on these indicators, Lithuania's ability to absorb and assimilate external information appears very limited. In 2015, Lithuania scored 7th lowest on overall knowledge absorption out of the 141 countries analysed. Royalties and licence fee payments, and also high-tech imports seem to persistently remain at very low levels. Examining Lithuania's ability to absorb external knowledge in a European context provides similar results: again the country is ranked in last place (Graph 2.6.3) ⁽⁴³⁾.

Graph 2.6.3: Absorptive capacity index, percentage rank.



(1) Percentage ranks evaluate the relative standing of a value within a given data set. The percentage ranks are based on a sample of 36 European countries, only the values for the EU are shown.

(2) There is no data available for Cyprus.

Source: WIPO, INSEAD, Johnson Cornell University

In light of Lithuania's poor innovation performance and limited absorptive capacity, its current research and innovation policy set-up appears to have room for significant improvements. Further strengthening human capital development (see section 2.5) and innovation/industrial policies in certain fields of science, in particular in high-tech sectors (e.g. biotech, laser), need attention. In terms of organisational setup, Lithuania could benefit from having a single ministry or body to coordinate and assume full responsibility and ownership, since the fragmentation of key innovation and research

responsibilities often hinders effectiveness. Although a lot of resources have been devoted to planning the use of EU funds during the current programming period, no initiatives have been taken to address the fragmented distribution of innovation responsibilities.

There is a strong emphasis on science-driven innovation and hard infrastructure, mostly targeting a limited number of current R&D performers. By contrast, there is a lack of demand side policies strengthening 'soft' capacity building for all companies (not only those already involved in R&I activities).

Lithuania has the potential to achieve the following:

- a better targeted production of skills and educational outcomes;
- easier access to international product markets;
- support for FDI;
- strengthening international networking for industry and science;
- using external innovation services to greater effect;
- encouraging internal knowledge transfer, especially between high-tech and low-tech industries, and coordinating existing efforts resulting in a clear long term strategy.

⁽⁴²⁾ For more details on the calculation of sub-components see <https://www.globalinnovationindex.org/content/page/gii-full-report-2015/>.

⁽⁴³⁾ A recent report highlights that about 80 % of Lithuanian SMEs have low absorptive capacity (Leichteris, E., M. Jonauskis, M. Petraite, M. Vilys, A. Jakubavicius and G. Stumbryte (2015), 'Initial Assessment of Lithuanian Innovation Policy', Knowledge Economy Forum).

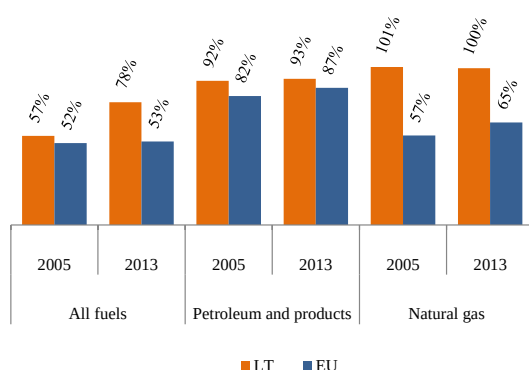
2.7. INFRASTRUCTURE, ENVIRONMENT AND STATE-OWNED ENTERPRISES

Energy infrastructure and supply security

Lithuania has managed to strengthen its security of energy supply by developing major energy infrastructure projects. These include the liquid natural gas terminal in Klaipėda, which started commercial operations in January 2015, and the upgrading of the Klaipėda – Kiemėnai pipeline. Lithuania has been able to diversify its gas imports using a Norwegian supplier ⁽⁴⁴⁾.

In the electricity sector, two interconnectors - with Sweden (NordBalt) and Poland (LitPol Link) were commissioned in December 2015. Following these developments, Lithuania's import dependency is still considerable but no longer dependent on a single energy source as was the case in 2013 (Graph 2.7.1).

Graph 2.7.1: Import dependency, 2013



Source: European Commission

The physical isolation of Lithuania (and the two other Baltic states) from the European gas network could come to an end in 2019. The construction of a new bi-directional gas interconnector with Poland (GIPL) will be the first gas interconnector between the eastern Baltic region and the continental European gas network. If completed as planned at the end of 2019, this

⁽⁴⁴⁾ The annual capacity of the terminal is sufficient to cover 90 % of the yearly gas demand of the three Baltic States. In the first half of 2015, approximately 25 % of gas demand in Estonia was covered by liquid natural gas from Klaipėda. The terminal has had a significant impact on gas price in Lithuania; Gazprom was reported to reduce gas prices in 2013, 2014 and 2015 by 16-22 %.

project will further strengthen security of energy supply.

In addition, in the first quarter of 2015 the three Baltic states agreed on a common strategic goal: de-synchronisation from the Russian/Belorussian (i.e. IPS/UPS) electricity grid, and synchronisation of their power systems with the continental European network. Whereas the synchronisation of the Baltic states with the continental European networks was set as an objective, other options, such as synchronous operation with the Nordic grid, could also be explored to find the most cost-efficient solution. The de-synchronisation project will constitute the biggest challenge for Lithuania's electricity market in the next few years. Moreover, Lithuania is still contemplating building a regional nuclear power plant together with other regional partners, which would further reduce its dependency on electricity imports.

With a renewable energy share of 23 % in 2013 and an expected share of 23.5 % in 2014, Lithuania has already met its binding Europe 2020 target for renewable energy. Active support policies for renewable energy, especially in the electricity and heating and cooling sector, contributed to energy supply diversification and fossil fuel displacement. With a renewable energy share of 4.19 % in transport (2014), Lithuania still has to go some way towards reaching the 10 % target for the transport sector by 2020.

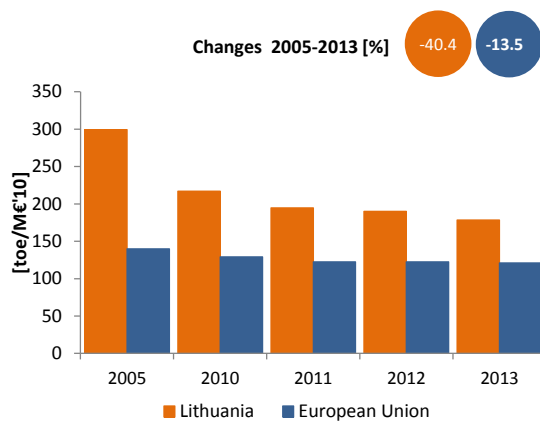
Lack of competition in some parts of the domestic energy sector weighs on energy bills. While Lithuania's gas market is fully liberalised and customers are free to choose between gas suppliers, so far only modest interest in switching has been observed, pointing to a lack of competition. In particular, despite new players entering the market, the retail gas market remains highly concentrated, with three suppliers covering 99.1 % of the market (the market shares of the three largest market participants were 90.6 %, 5.1 % and 3.3 %, respectively). The retail electricity market is more competitive. The market share of the incumbent AB LESTO accounted for 35.7 % in 2014, while alternative suppliers had between 4 and 15 %. Although the diversification of import sources has had positive impact on gas

wholesale prices, as with the costs for electricity, they remain above the EU average.

Energy efficiency

Increasing Lithuania's energy efficiency reduces long-term costs, and creates energy security. Energy intensity in Lithuania remains one of the highest in the EU and is particularly high in sectors such as industry, buildings and transport. Primary energy intensity continues to stand well above the EU average, but shows no improvement over the period 2005 to 2013 (Graph 2.7.2). Overall, Lithuania will meet its 2020 energy efficiency target if its efforts are maintained.

Graph 2.7.2: Primary energy intensity



Source: European Commission

Lithuania continues to make progress on energy efficiency in housing. Since 2013, when the new financial model for the renovation of multi-family buildings was introduced, significant progress has been achieved on implementing projects⁽⁴⁵⁾. Over the 2014-2020 period, EU structural and investment funds will provide the basis for further investments to improve energy efficiency in around 1,300 houses in Lithuania. Despite these efforts roughly 24,000 multi-apartment buildings require renovation. The country also uses revenues from the auctioning of

⁽⁴⁵⁾ As a result, 3658 investment projects have been approved, 1160 of those are currently ongoing and 535 projects have finished (Source: Lithuanian Ministry of Finance, November 2015).

its emissions trading system allowances (around EUR 20 million per year) to improve the energy efficiency of buildings.

Transport

Lithuania's transport sector is of strategic importance for the country's economy. Its efficient functioning is therefore important for Lithuania's growth prospects and competitiveness. Exports of transport services account for around 60 % of Lithuania's services exports. In 2015, the transport sector proved its resilience having fallen only 2% overall in the first three quarters, despite seeing heavy losses in the Russian market due to the Russian trade embargo and recession. The main markets are Russia, Germany, Belarus, Denmark and France. Lithuania's geographical location combined with a relatively strong transport sector performance (accounting for 13 % of GDP in 2013) may provide the right conditions for developing the country into a regional transit and logistics hub.

The transport infrastructure has room for improvement. Only 6.9 % of railway tracks are electrified, and there is no north-south rail connection. In addition, competition in the rail sector is limited although the rail market is deregulated. Despite the attempt to use open tenders in awarding public services contracts, these were not successful and it has not been possible to find new passenger market entrants. As a consequence, public service contracts in Lithuania are awarded to the only rail company currently operating passenger services – JSC Lithuanian railways.

Cross-border connectivity in Lithuania's transport infrastructure could be strengthened by accelerating the Rail Baltic European-gauge railway infrastructure project. This high priority project would connect the Baltic states to the European rail network. A single-track European-gauge line from Kaunas to the Polish-Lithuanian border was officially opened in October 2015, but electrification of the line and a signalling system are still lacking. The Rail Baltic project is scheduled to be completed in the mid-2020s. It is expected to provide a strong stimulus for economic growth and the reduction of greenhouse gas emissions through a shift towards more rail transport of freight and passengers.

The share of public transport is very low (8.6 %) compared with the EU average (17.3 %). The use of passenger cars accounted for 91.4 % of all passenger-kilometres in Lithuania (EU average 81.7 %) in 2013, representing the highest share in the EU. At 615 cars per 1000 inhabitants in 2013, the density of passenger cars was also significantly higher than in the EU (491 cars per 1000 inhabitants). Moreover, increasing road safety remains a challenge as the number of road fatalities remains high ⁽⁴⁶⁾.

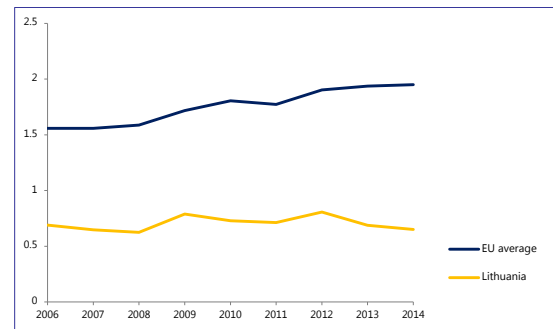
Information and communication

Coverage and availability of high-speed broadband connections are good, but take-up is poor. High speed broadband connections are technically available to 97 % of all homes, one of the largest high-speed coverages in the EU. However, although the monthly price of stand-alone internet access, relative to income, is about half the EU average, actual take-up is relatively low, with only 60 % of all households having subscribed to a broadband connection. This puts Lithuania among the bottom five countries in the EU. Moreover, e-commerce trading activities are underdeveloped since only 44 % of internet users shopped online in 2015 (EU average 65 %). Lithuania therefore needs to make better use of past investments in ICT hardware. This could increase competition, the quality of public services and consumer choice ⁽⁴⁷⁾.

Environment

Resource productivity, a measurement of how efficient existing resources are used, is quite low overall in Lithuania and decreased further in 2014 (Graph 2.7.3).

Graph 2.7.3: Resource productivity in Lithuania compared with the EU average, EUR



(1) Resource productivity above is measured as how much economic value (EUR) was generated per kilogram of raw material consumption. In 2014, the value for Lithuania was EUR 0.65, while the EU average was around EUR 2.

Source: European Commission

Managing waste efficiently and reaching the 2020 recycling target of 50% remains a challenge in Lithuania. In 2013, the main waste treatment means was disposal in landfills. Although the figure fell significantly (from 78 % in 2012 to 62 % in 2013) Lithuania remains behind the EU recycling average of 30 % in 2013. Moreover, the government has significantly weakened an envisaged landfill tax reform for 2016. Initially adopted in November 2014, the tax was supposed to reach EUR 27 per tonne from January 2016, but it was reduced to EUR 3, in the last parliamentary session of 2015. The partial withdrawal of the tax reform was based on the argument that a large part of the tax burden would fall on households, making the reform socially sensitive. This short-notice move could discourage investment in waste processing and sorting.

Moreover, more investments in recycling will be needed to implement fully the waste hierarchy ⁽⁴⁸⁾ and to meet the objectives of the resource efficiency roadmap ⁽⁴⁹⁾. Consulting relevant stakeholders to ensure appropriate funding for the separation of collection, sorting and waste recycling is important as well as considering

⁽⁴⁶⁾ Lithuania still reports one of the highest numbers of road deaths per million inhabitants in the EU (91 deaths per million in 2014, 80 deaths per million in 2015 (preliminary figure)). The EU average is 51 deaths per million inhabitants.

⁽⁴⁷⁾ In an overall assessment of performance in digitisation of the economy Lithuania ranks 13th among the EU Member States in the digital economy and society index (DESI) 2016. It is 7th on connectivity, 19th on human capital, 10th on use of internet, 8th on integration of digital technology and 16th on digital public services. For more information about the DESI see <http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard>.

⁽⁴⁸⁾ The term waste hierarchy is a cascading concept in which preference is given to prevention followed by reuse, recycling before energy recovery and finally disposal activities such as landfilling and incineration without energy recovery.

⁽⁴⁹⁾ The objectives of the resource efficiency include ensuring the full implementation of the EU waste acquis including minimum targets through national waste prevention and management strategies.

separate collection schemes and pay-as-you-throw schemes at local level.

Public procurement

Improving the efficiency of public procurement remains important. Major goals include strengthening the administrative capacity of investment planning, simplifying rules and procedures, and improving transparency in public procurement, in particular at municipal level. To reduce corruption risks and conflicts of interest in low-value procurement, the government obliged contracting authorities to publish information on initiated tenders, the successful bidder and the contract awarded on the internet. However, only a few authorities are complying with this requirement, which has been in force since January 2015. In addition, weak whistle-blower arrangements discourage tip-offs about potential irregularities. In a 2015 study, 39 % of business managers claimed that corruption prevented them from winning a public tender or public procurement contract, compared with the EU average of 34 %⁽⁵⁰⁾.

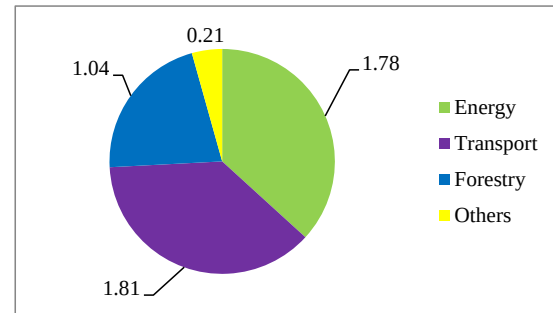
State-owned enterprises

While most reforms concerning state-owned enterprises are in place, their implementation and compliance needs to be ensured⁽⁵¹⁾. With roughly 130 state-owned enterprises and a combined asset value of about 20 % of GDP (Graph 2.7.4), the Lithuanian state is not only a major shareholder and owner of commercial assets in the country, but also a provider of goods and services in sectors such as transport and energy.

⁽⁵⁰⁾ According to the 2015 Flash Eurobarometer 428.

⁽⁵¹⁾ A recently published OECD report on the corporate governance of Lithuanian SOEs provides similar findings (<http://www.oecd.org/daf/ca/oecd-review-corporate-governance-soe-lithuania.htm>).

Graph 2.7.4: **State-owned enterprise portfolio - estimated market value in billion EUR, 2014.**



Source: Governance Coordination Centre (Valdymo Koordinavimo Centras, VKC)

A rigorous implementation of the different strands of reform could further improve performance of state-owned enterprises. Limiting cross-subsidies between commercial and non-commercial activities or across state-owned enterprises could also improve transparency of the budgetary costs of public service obligations.

With 42 state-owned forestry companies and 11 road maintenance companies, there is a high degree of fragmentation within individual sectors. Moreover, many state-owned enterprises fall short of the 5 % return-on-equity target. Board professionalisation also remains a challenge, while advancing the nomination of outside specialists, and implementing more transparent nomination procedures remain important issues to be addressed. Moreover, the absence of a centralised ownership body is an obstacle to efficient governance and resource allocation. At present, ownership rights are exercised by around 12 ministries or ministerial departments, and seven other public institutions, which makes compliance monitoring problematic.

Municipality-owned enterprises are another major owner of public assets and are also in need for reform. They have an equity value of roughly EUR 1.2 billion (end 2013)⁽⁵²⁾. Finalising the reform of public assets, including municipality-owned enterprises, remains important as public companies have a key role in carrying out future large infrastructure projects needed to upgrade Lithuania's energy and transport infrastructure.

⁽⁵²⁾ Lithuania's governance coordination centre (Valdymo Koordinavimo Centras).

ANNEX A

Overview Table

Commitments

Summary assessment⁽⁵³⁾

2015 Country-specific recommendations (CSRs)	
CSR 1: Avoid deviating from the medium-term objective in 2015 and ensure that the deviation in 2016 is limited to the allowance linked to the systemic pension reform. Broaden the tax base and improve tax compliance.	Lithuania has made limited progress on addressing CSR 1 of the Council recommendation (this overall assessment of CSR1 does not assess compliance with the Stability and Growth Pact): • Limited progress in reviewing the tax system. Minor amendments have been made to increase environmental and property taxation and to narrow tax exemptions for capital income. • Some progress has been made to improve tax compliance. The government introduced several measures, in particular a 'VAT Invoice register' project to improve the collection of VAT.
CSR 2: Address the challenge of a shrinking working-age population by improving the labour-market relevance of education, increasing attainment in basic skills, and improving the performance of the healthcare system; reduce the high tax wedge for low income earners by shifting the tax burden to other sources less detrimental to growth.	Lithuania has made limited progress on addressing CSR 2: • Some progress has been made to improve the labour-market relevance of education. Infrastructure for training has been further improved. Some progress has been made on putting in place modular VET training programmes, on improving VET governance and on offering more work-based learning opportunities. • Limited progress has been made to increase attainment in basic skills. • Limited progress has been made to improve the effectiveness of the health system. The government is working on measures to improve the efficiency and quality of the healthcare system. • Limited progress on reducing the high tax wedge for low income earners by shifting the tax burden to other sources less detrimental to growth. Although Lithuania made some progress in reducing low income earners' tax burden, no progress was made in shifting the

⁽⁵³⁾ The following categories are used to assess progress in implementing the 2015 CSRs of the Council Recommendation: No progress: The Member State (MS) has neither announced nor adopted any measures to address the CSR. This category also applies if the MS has commissioned a study group to evaluate possible measures. Limited progress: The MS has announced some measures to address the CSR, but these measures appear insufficient and/or their adoption/implementation is at risk. Some progress: The MS has announced or adopted measures to address the CSR. These measures are promising, but not all of them have been implemented yet and implementation is not certain in all cases. Substantial progress: The MS has adopted measures, most of which have been implemented. These measures go a long way in addressing the CSR. Fully addressed: The MS has adopted and implemented measures that address the CSR appropriately.

	tax burden towards more growth friendly taxes; therefore the overall progress is limited. In addition, the government has scaled down the scope of newly introduced landfill taxes (contrary to previous plans).
CSR3: Adopt a comprehensive reform of the pension system that also addresses the challenge of pension adequacy. Improve the coverage and adequacy of unemployment benefits and cash social assistance and improve the employability of those looking for work.	Lithuania has made limited progress in addressing CSR3: • Limited progress on the comprehensive pension system reform. Lithuania has announced measures to address the CSR under the legislative package on the so called 'social model', amendments to the Law on state social insurance pensions, the Law on unemployment social insurance, and the new edition of the Labour Code). However, it is uncertain whether they will be adopted by June 2016. • Limited progress on improving the coverage and adequacy of unemployment benefits and cash social assistance. Lithuania has announced measures to address the coverage and adequacy of unemployment insurance benefits. However, it is uncertain whether they will be adopted by June 2016. No measures are envisaged for improving the adequacy and coverage of social assistance and the employability of beneficiaries of cash social assistance. • Some progress on improving the employability of those looking for work. The legislative package on the so called 'social model' includes measures to foster job creation, but adoption by June 2016 remains uncertain. Lithuania has reinforced provision of ALMP measures, especially vocational training and employment subsidies.
Europe 2020 (national targets and progress)	
Employment rate target: 72.8%	The employment rate reached 71.8 % in 2014.
R&D target: 1.9% of GDP with half coming from private sector.	Lithuania's R&D intensity is equivalent to 1.02 % of GDP, and has been on a gentle upward trend over the recent years. Business expenditure on R&D (BERD) is 0.30% of GDP.
Greenhouse gas (GHG) emissions target:	Europe 2020 target: 15 %
+15% compared to 2005 emissions, ETS (Emissions Trading System) emissions are not	Lithuania is expected to meet its target by a margin of 18 percentage points: -3 % in 2020 compared

covered by this national target	with 2005. This is according to the latest national projections submitted to the Commission, and when existing measures are taken into account. Non-ETS 2014 target: -1 %. Greenhouse gas emissions from sectors not covered by the emissions trading scheme fell by -7 % between 2005 and 2014. Therefore Lithuania has achieved the target.
Renewable energy target: 23 % Share of renewable energy in transport sector: 10 %	With a renewable energy share of 23.9 % in 2014, Lithuania is well on track to reach its 23% target in 2020. Lithuania has also considered holding negotiations with other Member States on sharing its excess renewables production (up to 2020) under cooperation mechanisms for renewable energy. With a 4.2 % share of renewable energy in transport, Lithuania is less than half-way towards achieving the 10 % target by 2020.
Energy efficiency: 17 % reduction in final energy use compared to 2009 level (reduction of 740 ktoe) This implies reaching a 2020 level of 6.49 Mtoe of primary and 4.28 Mtoe of final energy consumption.	Comparing the trend of primary energy consumption with changes in GDP over the past decades, shows evidence that there has been a strong decoupling of both in Lithuania.
Early school leaving target: <9 %	The level of early school leaving was 5.9 % in 2014; this continues to be below the national target.
Tertiary education target: 48.7 %	Tertiary attainment among 30-34 year olds increased to 53.3 % in 2014 and is above the national target. Lithuania is working on improving the quality of its tertiary education.
Risk of poverty or social exclusion target: 814,000	Lithuania has met its national target: in 2014 there were 804,000 people at risk of poverty or social exclusion (27.3 % of the total population). This is the lowest rate since 2005. In 2010, when the national target was set, 1,109,000 people (33.4 %) were at risk of poverty or social exclusion.

ANNEX B

MIP Scoreboard

Table B.1: **Macroeconomic imbalances scoreboard**

			Thresholds	2009	2010	2011	2012	2013	2014
External imbalances and competitiveness	Current account balance, (% of GDP)	3 year average	-4%/6%	-8.8	-3.9	-0.7	-1.8	-1.2	1.3
	Net international investment position (% of GDP)		-35%	-58.4	-56.0	-52.6	-53.4	-47.0	-46.4
	Real effective exchange rate - 42 trading partners, HICP deflator	3 years % change	±5% & ±11%	16.6	7.2	1.7	-6.7	-0.6	1.4
	Export market share - % of world exports	5 years % change	-6%	30.8	18.9	30.1	33.0	20.5	35.3
	Nominal unit labour cost index (2010=100)	3 years % change	9% & 12%	13.0	0.3	-7.8	-4.2	6.1	8.3
Internal imbalances	Deflated house prices (% y-o-y change)		6%	-32.8	-8.6	2.4	-3.2	0.2	6.3
	Private sector credit flow as % of GDP, consolidated		14%	-9.4	-5.9	-1.0	0.6	-0.2	-1.2
	Private sector debt as % of GDP, consolidated		133%	83.3	74.5	64.8	61.1	56.4	52.5
	General government sector debt as % of GDP		60%	29.0	36.2	37.2	39.8	38.8	40.7
	Unemployment rate	3 year average	10%	8.0	12.5	15.7	15.5	13.5	12.0
	Total financial sector liabilities (% y-o-y change)		16.5%	-4.7	0.3	2.0	0.4	-1.7	16.3
New employment indicators	Activity rate - % of total population aged 15-64 (3 years change in p.p)		-0.2%	2.0	2.3	3.0	2.2	2.2	2.3
	Long-term unemployment rate - % of active population aged 15-74 (3 years change in p.p)		0.5%	0.7e	6.0e	6.7	3.3	-2.3	-3.2
	Youth unemployment rate - % of active population aged 15-24 (3 years change in p.p)		2%	19.6	27.3	19.3	-2.9	-13.8	-13.3

(e): estimated.

Figures highlighted are those falling outside the threshold established in the European Commission's Alert Mechanism Report. For REER and ULC, the first threshold applies to euro area Member States.

Source: European Commission

ANNEX C

Standard Tables

Table C.1: **Financial market indicators**

	2010	2011	2012	2013	2014	2015
Total assets of the banking sector (% of GDP)	91.6	79.0	73.2	68.7	69.9	67.2
Share of assets of the five largest banks (% of total assets)	78.8	84.7	83.6	87.1	85.7	-
Foreign ownership of banking system (% of total assets)	79.6	73.5	72.0	72.7	73.4	-
Financial soundness indicators:						
- non-performing loans (% of total loans) ⁽¹⁾	23.3	18.8	14.8	11.6	8.2	6.7
- capital adequacy ratio (%) ⁽¹⁾	14.8	14.2	15.7	17.6	21.3	23.8
- return on equity (%) ⁽¹⁾	-4.7	18.6	9.0	10.2	10.0	9.0
Bank loans to the private sector (year-on-year % change)	-	-1.4	2.2	-1.0	-0.3	5.3
Lending for house purchase (year-on-year % change)	-0.8	0.2	-0.8	0.6	2.2	3.5
Loan to deposit ratio	145.8	133.2	125.4	115.7	99.3	97.1
Central Bank liquidity as % of liabilities	1.7	1.4	1.9	1.7	0.0	1.9
Private debt (% of GDP)	74.5	64.8	61.1	56.4	52.5	-
Gross external debt (% of GDP) ⁽²⁾ - public	32.6	32.3	38.2	33.3	38.1	34.4
- private	21.2	21.2	18.8	19.2	18.0	17.6
Long-term interest rate spread versus Bund (basis points)*	282.3	255.2	333.6	226.2	162.9	88.5
Credit default swap spreads for sovereign securities (5-year)*	259.5	234.5	203.1	107.5	100.9	76.4

(1) Latest data Q2 2015.

(2) Latest data September 2015. 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); Eurostat (private debt); ECB (all other indicators).

Table C.2: Labour market and social indicators

	2010	2011	2012	2013	2014	2015 ⁽⁴⁾
Employment rate (% of population aged 20-64)	64.3	66.9	68.5	69.9	71.8	73.1
Employment growth (% change from previous year)	-5.3	0.5	1.8	1.3	2.0	1.3
Employment rate of women (% of female population aged 20-64)	65.0	66.6	67.9	68.6	70.6	72.0
Employment rate of men (% of male population aged 20-64)	63.5	67.2	69.1	71.2	73.1	74.3
Employment rate of older workers (% of population aged 55-64)	48.3	50.2	51.7	53.4	56.2	60.1
Part-time employment (% of total employment, aged 15 years and over)	8.2	8.9	9.5	9.0	9.1	8.4
Fixed term employment (% of employees with a fixed term contract, aged 15 years and over)	2.4	2.7	2.6	2.7	2.8	2.0
Transitions from temporary to permanent employment	46.3	53.3	16.1	54.9	43.5	:
Unemployment rate ⁽¹⁾ (% active population, age group 15-74)	17.8	15.4	13.4	11.8	10.7	9.3
Long-term unemployment rate ⁽²⁾ (% of labour force)	7.4	8.0	6.6	5.1	4.8	4.0
Youth unemployment rate (% active population aged 15-24)	35.7	32.6	26.7	21.9	19.3	17.3
Youth NEET ⁽³⁾ rate (% of population aged 15-24)	13.2	11.8	11.2	11.1	9.9	:
Early leavers from education and training (% of pop. aged 18-24 with at most lower sec. educ. and not in further education or training)	7.9	7.4	6.5	6.3	5.9	:
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	43.8	45.7	48.6	51.3	53.3	:
Formal childcare (30 hours or over; % of population aged less than 3 years)	12.0	8.0	5.0	10.0	:	:

(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.

(2) Long-term unemployed are peoples who have been unemployed for at least 12 months.

(3) Not in Education Employment or Training.

(4) Average of first three quarters of 2015. Data for total unemployment and youth unemployment rates are seasonally adjusted.

Source: European Commission (EU Labour Force Survey)

Table C.3: Labour market and social indicators – continued

Expenditure on social protection benefits (% of GDP)	2009	2010	2011	2012	2013	2014
Sickness/healthcare	5.4	4.7	4.5	4.2	4.1	:
Invalidity	2.0	1.8	1.6	1.5	1.4	:
Old age and survivors	8.9	7.9	7.1	7.3	6.9	:
Family/children	2.8	2.2	1.7	1.4	1.1	:
Unemployment	0.9	0.8	0.6	0.4	0.4	:
Housing and social exclusion n.e.c.	0.0	0.0	0.0	0.0	0.0	:
Total	20.4	18.1	16.2	15.5	14.5	:
of which: means-tested benefits	0.5	1.0	1.0	0.9	0.7	:
Social inclusion indicators	2009	2010	2011	2012	2013	2014
People at risk of poverty or social exclusion ⁽¹⁾ (% of total population)	29.6	34.0	33.1	32.5	30.8	27.3
Children at risk of poverty or social exclusion (% of people aged 0-17)	30.8	35.8	34.6	31.9	35.4	28.9
At-risk-of-poverty rate ⁽²⁾ (% of total population)	20.3	20.5	19.2	18.6	20.6	19.1
Severe material deprivation rate ⁽³⁾ (% of total population)	15.6	19.9	19.0	19.8	16.0	13.6
Proportion of people living in low work intensity households ⁽⁴⁾ (% of people aged 0-59)	7.2	9.5	12.7	11.4	11.0	8.8
In-work at-risk-of-poverty rate (% of persons employed)	10.3	12.6	9.5	7.6	9.1	8.3
Impact of social transfers (excluding pensions) on reducing poverty	29.0	34.5	36.4	34.5	32.0	30.5
Poverty thresholds, expressed in national currency at constant prices ⁽⁵⁾	8308	6818	6449	6965	7314	7420
Gross disposable income (households; growth %)	-7.9	0.8	5.2	3.3	5.3	2.5
Inequality of income distribution (S80/S20 income quintile share ratio)	6.4	7.3	5.8	5.3	6.1	6.1

(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 and/or living in households with zero or very low work intensity.

(2) At-risk-of-poverty rate: 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).

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

Table C.4: Structural policy and business environment indicators

Performance indicators	2009	2010	2011	2012	2013	2014
Labour productivity (real, per person employed, y-o-y)						
Labour productivity in industry	3.76	13.04	6.04	-1.11	3.90	5.94
Labour productivity in construction	-22.83	17.19	16.76	-10.15	-0.75	14.73
Labour productivity in market services	-7.97	3.02	6.78	3.93	3.77	-1.80
Unit labour costs (ULC) (whole economy, y-o-y)						
ULC in industry	-6.36	-7.32	-1.75	2.50	0.54	2.24
ULC in construction	-1.51	-0.66	-0.11	11.98	-0.96	-8.92
ULC in market services	-0.96	-5.11	1.27	2.43	3.58	4.68
Business environment	2009	2010	2011	2012	2013	2014
Time needed to enforce contracts ⁽¹⁾ (days)	210	300	300	300	300	300
Time needed to start a business ⁽¹⁾ (days)	26.0	26.0	22.0	22.0	19.5	6.5
Outcome of applications by SMEs for bank loans ⁽²⁾	0.97	na	0.92	na	1.16	1.27
Research and innovation	2009	2010	2011	2012	2013	2014
R&D intensity	0.83	0.78	0.90	0.90	0.95	1.02
Total public expenditure on education as % of GDP, for all levels of education combined	5.64	5.36	5.17	4.83	na	na
Number of science & technology people employed as % of total employment	45	47	47	47	48	49
Population having completed tertiary education ⁽³⁾	26	27	28	29	30	31
Young people with upper secondary level education ⁽⁴⁾	87	87	88	89	90	91
Trade balance of high technology products as % of GDP	-0.12	0.23	0.11	0.23	0.06	-0.01
Product and service markets and competition				2003	2008	2013
OECD product market regulation (PMR) ⁽⁵⁾ , overall				na	na	1.52
OECD PMR ⁽⁵⁾ , retail				na	na	1.11
OECD PMR ⁽⁵⁾ , professional services				na	na	1.85
OECD PMR ⁽⁵⁾ , network industries ⁽⁶⁾				na	na	2.02

(1) The methodologies, including the assumptions, for this indicator are shown in detail here:

<http://www.doingbusiness.org/methodology>.

(2) Average of the answer to question Q7B_a. "[Bank loan]: If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome?". Answers were codified as follows: zero if received everything, one if received most of it, two if only received a limited part of it, three if refused or rejected and treated as missing values if the application is still pending or don't know.

(3) Percentage population aged 15-64 having completed tertiary education.

(4) Percentage population aged 20-24 having attained at least upper secondary education.

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

(6) 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); SAFE (for outcome of SMEs' applications for bank loans)

Table C.5: **Green growth**

Green growth performance		2009	2010	2011	2012	2013	2014
Macroeconomic							
Energy intensity	kgoe / €	0.39	0.31	0.30	0.29	0.27	-
Carbon intensity	kg / €	0.92	0.94	0.91	0.87	0.79	-
Resource intensity (reciprocal of resource productivity)	kg / €	1.59	1.73	1.77	1.56	1.83	1.93
Waste intensity	kg / €	-	0.25	-	0.23	-	-
Energy balance of trade	% GDP	-4.1	-7.1	-7.6	-7.5	-6.1	-5.9
Weighting of energy in HICP	%	12.54	13.63	15.35	16.39	16.84	14.25
Difference between energy price change and inflation	%	12.0	6.4	6.9	3.8	-1.8	-4.8
Real unit of energy cost	% of value added	27.2	27.2	27.2	-	-	-
Ratio of labour taxes to environmental taxes	ratio	7.3	7.1	7.4	7.6	7.7	7.6
Environmental taxes	% GDP	2.0	1.8	1.7	1.6	1.6	1.7
Sectoral							
Industry energy intensity	kgoe / €	0.18	0.18	0.18	0.18	0.17	-
Real unit energy cost for manufacturing industry	% of value added	107.0	107.0	107.0	-	-	-
Share of energy-intensive industries in the economy	% GDP	-	-	-	-	-	-
Electricity prices for medium-sized industrial users	€ / kWh	0.09	0.10	0.10	0.11	0.12	0.12
Gas prices for medium-sized industrial users	€ / kWh	0.03	0.03	0.04	0.05	0.04	0.04
Public R&D for energy	% GDP	0.02	0.02	0.02	0.01	0.02	0.01
Public R&D for environment	% GDP	0.02	0.00	0.00	0.00	0.00	0.01
Municipal waste recycling rate	%	8.5	12.8	20.4	23.5	34.9	-
Share of GHG emissions covered by ETS*	%	28.3	30.3	25.9	26.4	37.4	35.5
Transport energy intensity	kgoe / €	0.71	0.65	0.61	0.59	0.56	-
Transport carbon intensity	kg / €	2.10	1.94	1.82	1.71	1.63	-
Security of energy supply							
Energy import dependency	%	49.9	81.8	81.7	80.3	78.3	-
Aggregated supplier concentration index	HHI	99.8	100.6	100.0	100.5	99.8	-
Diversification of energy mix	HHI	0.28	0.30	0.29	0.29	0.27	-

General explanation of the table items:

- (1) All macro intensity indicators are expressed as a ratio of a physical quantity to GDP (in 2005 prices)
- (2) Energy intensity: gross inland energy consumption (in kgoe) divided by GDP (in EUR)
- (3) Carbon intensity: greenhouse gas emissions (in kg CO₂ equivalents) divided by GDP (in EUR)
- (4) Resource intensity: domestic material consumption (in kg) divided by GDP (in EUR)
- (5) Waste intensity: waste (in kg) divided by GDP (in EUR)
- (6) Energy balance of trade: the balance of energy exports and imports, expressed as % of GDP
- (7) Weighting of energy in HICP: the proportion of "energy" items in the consumption basket used for the construction of the HICP. (7) Difference between energy price change and inflation: energy component of HICP, and total HICP inflation (annual % change)
- (8) Real unit energy cost: real energy costs as a percentage of total value added for the economy. (9) Environmental taxes over labour taxes and GDP: from European Commission's database, 'Taxation trends in the European Union'
- (10) Industry energy intensity: final energy consumption of industry (in kgoe) divided by gross value added of industry (in 2005 EUR)
- (11) Real unit energy costs for manufacturing industry: real costs as a percentage of value added for manufacturing sectors
- (12) Share of energy-intensive industries in the economy: share of gross value added of the energy-intensive industries in GDP
- (13) Electricity and gas prices for medium-sized industrial users: consumption band 500–20 000 MWh and 10 000–100 000 GJ; figures excl. VAT.
- (14) Municipal waste recycling rate: ratio of recycled municipal waste to total municipal waste
- (15) Public R&D for energy or for the environment: government spending on R&D (GBAORD) for these categories as % of GDP
- (16) Proportion of greenhouse gas (GHG) emissions covered by EU (1) Emission Trading System (ETS): based on greenhouse gas emissions (excluding land use, land use change and forestry) as reported by Member States to the European Environment Agency)
- (17) Transport energy intensity: final energy consumption of transport activity (kgoe) divided by transport industry gross value added (in 2005 EUR)
- (18) Transport carbon intensity: greenhouse gas emissions in transport activity divided by gross value added of the transport sector
- (19) Energy import dependency: net energy imports divided by gross inland energy consumption incl. consumption of international bunker fuels
- (20) Aggregated supplier concentration index: covers oil, gas and coal. Smaller values indicate larger diversification and hence lower risk.
- (21) Diversification of the energy mix: Herfindahl index over natural gas, total petrol products, nuclear heat, renewable energies and solid fuels.

Source: European Commission (Eurostat) unless indicated otherwise