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Abbreviations

APP	asset purchase programme
CIS	Commonwealth of Independent States
EC	European Commission
ECB	European Central Bank
EU	European Union
GDP	gross domestic product
HICP	Harmonised Index of Consumer Prices
IMF	International Monetary Fund
MFI	monetary financial institution
MRO	main refinancing operations
PMI	Purchasing Managers' Index
SC	state-owned enterprise
SME	small and medium-sized enterprise
SSC	social security contribution
TLTRO	targeted longer-term refinancing operation
UK	United Kingdom
US	United States of America
VAT	value-added tax

ECONOMIC OUTLOOK

This year, Lithuania's economic development was marked by considerable changes. Some economic activities, the situation of which was less favourable last year, found 2016 to be more successful, while the state of other economic activities deteriorated. Hence the entire economy showed sluggish acceleration in 2016. Nevertheless, the labour market continued to show evident developments, which first emerged several years ago: hiring intensified, shortage of qualified employees became more persistent, and pressures on wages were still strong.

In 2016, the export sector saw positive shifts. As the export market in Russia and other CIS countries shrunk, some exporters, primarily transport companies, had to seek new business opportunities. With Russia imposing trade restrictions and its economy suffering hefty losses, the volume of the activities of Lithuanian undertakings transporting cargo by road shrunk approximately by a sixth. Later, as provision of transport services picked up steam in other markets (largely in the EU), activity within the transport sector returned to its previous level. Slightly more pronounced economic expansion in 2016 was mainly supported by transport activities.

Advances in manufacturing (excluding mineral products) volumes in Lithuania were propelled by the boosting economy of major European trade partners, given that a large share of manufacturing output is exported. As in previous years, growth in manufacturing volumes was largely influenced by furniture production and manufacturing of wood products. Food and plastic product industries also saw positive developments, even though last year their volumes contracted.

So far, exports are expected to follow a consistent upward trend. It is projected that, in the coming years, global economic development, especially that of emerging market economies, will boost somewhat, as rising commodity prices will enhance economic growth in some countries. Economic expansion is also expected in advanced economies, including the euro area, where domestic demand is recovering, labour markets are regaining strength, and accommodative monetary policy is still ongoing, maintaining low interest rates and favourable credit terms.

However, there is risk that prospects for the export sector may be less favourable. For quite some time, such risk has been underpinned by expectations of less sustainable economic growth in Asian countries (namely, China). These countries may not necessarily be of high importance to Lithuanian exporters, yet they might be relevant to Lithuania's trade partners. Uncertainty over global external trade is also fuelled by protectionist ideas.

Risk related to trends of domestic economic development also becomes increasingly more paramount. Wages, which are increasing more than labour productivity, may have significant implications for enterprise competitiveness, especially if current trends in the labour market prevail. Such a scenario for labour market developments should not be discarded, as structural issues within Lithuania's economy have an impact on the labour market. With the birth rate in Lithuania falling significantly two decades ago, each year an increasingly smaller share of the younger population enters the domestic labour market. Such a negative trend will hold for at least several years, i.e. for some time fewer young employees will integrate into the domestic labour market. Moreover, emigration is still on an upswing. It shows no signs of abating; on the contrary, in recent years emigration even showed signs of upward momentum. Combating such economic problems is difficult and requires a lot of time. This means that in the near future shortage of staff will not be tackled, thus pushing up wages.

Recovering exports and the consumer-favourable situation in the labour market will be major factors behind economic expansion. Lower rate of unemployment and pronounced shortage of staff will continue to provide a positive boost to wages, which, in turn, enhance the prospects of households to consume. Prices, which will rise slightly more than this year, however, will probably eat into household purchasing power. In addition to exports and private consumption, investment will also fuel economic growth. As funds from the previous (2007–2013) EU financial perspective had no longer been used, the flow of EU funds to Lithuania reduced, since the implementation of projects financed with funds from the current (2014–2020) EU financial perspective has not yet gathered momentum. As a result, this year, total investment volume contracted, exerting strong downward pressure on construction activity. Construction production in 2016 plummeted more significantly than last year; it seems to have been weighing on the 2016 economic expansion the most. EU funds are projected to be used more extensively already in 2017, supporting recovery in investment. This will add to stronger economic growth starting from 2017. According to current projections, Lithuania's real GDP will be 2.0 per cent higher than last year, whereas in 2017 its growth rate will increase to 2.4 per cent.

Unlike last year, inflation this year is positive and should boost further in the following year. Inflation is projected to stand at 0.6 per cent in 2016 and 1.9 per cent in 2017. As in recent years, price dynamics will be mainly driven by the changing trends in global commodity markets. Amid ample supply and not as high demand, global prices for energy sources had been falling until the beginning

of 2016, before turning to an upward path later. It is projected that in 2017 these prices will rise partly owing to agreements to reduce oil production volumes. This means that energy source prices, which until now have had a dampening effect on inflation, will begin to raise it. The overall price level will increase further on the back of global food commodity and food prices. In the past few years, on account of large supply and accumulating reserves, these prices had dropped, yet this year, due to bad weather conditions, they began their upward climb. This swiftly hit consumer food prices in many countries, including Lithuania. In 2016, they followed a moderate upward trajectory, and should rise further in the next year. This year, underlying inflation, encompassing service and industrial goods prices, was higher than headline inflation; however, unlike in the previous two years, its growth rates were at a halt. With a rise in labour costs and substantial growth in domestic demand, underlying inflation should remain in the positive zone. It is projected to reach almost the same level as in 2016.

Outlook of Lithuania's economy in 2016–2017

	December 2016 projection ^a			September 2016 projection		
	2015	2016 ^b	2017 ^b	2015	2016 ^b	2017 ^b
Price and cost developments (annual percentage changes)						
Average annual inflation, as measured by the HICP	-0.7	0.6	1.9	-0.7	0.7	1.8
GDP deflator ^c	0.3	0.7	2.0	0.3	0.8	2.0
Wages	5.4	7.3	5.7	5.4	6.8	5.6
Import deflator ^c	-6.7	-4.9	2.3	-6.9	-4.0	1.7
Export deflator ^c	-3.7	-4.2	1.9	-3.9	-3.6	1.6
GDP and expenditure						
Gross domestic product ^c	1.7	2.0	2.4	1.6	2.3	2.9
Private consumption expenditure ^c	4.1	4.8	3.8	4.8	4.3	3.9
General government consumption expenditure ^c	0.9	1.2	1.2	1.9	1.3	1.3
Gross fixed capital formation ^c	5.0	-1.0	2.1	10.9	-3.7	6.5
Exports of goods and services ^c	-0.4	3.0	3.0	-0.1	3.3	3.5
Imports of goods and services ^c	6.2	2.0	3.4	6.0	2.3	4.1
Labour market						
Unemployment rate (annual average as a percentage of labour force)	9.0	8.0	7.4	9.1	8.0	7.5
Employment (annual percentage changes) ^d	1.3	2.0	0.0	1.3	1.5	0.0
External sector (as a percentage of GDP)						
Balance of goods and services	-0.7	0.6	-0.1	-0.4	0.5	-0.1
Current account balance	-2.3	-0.7	-0.7	-1.7	-0.4	-0.8
Current and capital account balance	0.7	0.5	1.3	1.3	1.3	1.9

^a These projections of macroeconomic indicators are based on information made available by 18 November 2016.

^b Projection.

^c Adjusted for seasonal and workday effects.

^d National accounts data; employment in domestic concept.

I. INTERNATIONAL ENVIRONMENT

Current global economic growth is still slower than the recovery period average and may be subject to various risk factors in the medium term. According to the IMF estimates, the growth of global real GDP will slow down to 3.1 per cent this year, predominantly due to weaker economic growth in advanced regions, especially the US and euro area. After being seen as the main risk source for some time, emerging market economies have shown some signs of stabilisation: smaller downturn in Brazil and Russia, stable growth of China's economy in the first three quarters of this year. Although China's economic development has essentially met expectations, the increase of its debt still causes big concerns about the possibility of a sharp slowdown in its economic growth and a shift from an investment- to consumer-driven economy. As concerns about the development prospects of emerging market economies were alleviated, estimates of advanced economy prospects started to deteriorate after the referendum in the UK. The UK's decision to leave the EU has not had significant impact on the real economy data of either the UK or the euro area so far: in the third quarter of 2016, the growth of the UK's real GDP was higher than expected (0.5% per quarter and 2.3% per year) and economic growth in the euro area remained stable (0.3% per quarter and 1.6% per year). However, medium-term projections for economic growth of both the euro area and the UK are reduced, because great uncertainty about further relations between the UK and the EU may lead to the companies and consumers putting off their investment or consumption decisions and a decrease in trade and financial flows, which would limit economic growth, especially in the UK. However, ultimately the effect on the economy will depend on the course and outcome of negotiations between the UK and the EU.

In 2016, interest rates set by the major central banks remained low and monetary policy – accommodative. The US was the first of the major advanced economies to tighten monetary policy at the end of last year by increasing the main interest rates to 0.25–0.5 per cent. The Federal Reserve System did not raise interest rates until December 2016, thus the monetary policy remained essentially accommodative. However, after the US presidential election in November expectations have strengthened that the monetary policy would be tightened at a faster rate than previously expected. In order to mitigate the possible negative effects of the referendum in the UK, the Bank of England reduced its key interest rate by 0.25 p.p. (down to 0.25%) and expanded the scope of the securities purchase programmes in August. In 2016, the Eurosystem continued to ease its monetary policy stance: it reduced interest rates and expanded the APP. In September 2016, the central bank of Japan announced a quantitative and qualitative easing programme with yield curve control, which will be based on two commitments: the monetary base will be expanded until inflation exceeds 2 per cent (previously, target inflation was up to 2%) along with imposition of control over short- and long-term interest rates.

The growth of the US economy slowed down more than expected in the first half of the year. Economic growth was suppressed by investment, the decrease of which was determined most by the development of the energy sector with the prices of raw materials remaining low. Household consumption remains one of the key determinants of economic growth. It is positively affected by good labour market indicators (declining unemployment rate, increasing employment, and rising wages) and low inflation.

Accelerated global economic growth in 2017 will be determined by a rise in economic activity in both advanced and emerging market economies.

GDP developments and inflation in selected advanced and emerging market economies

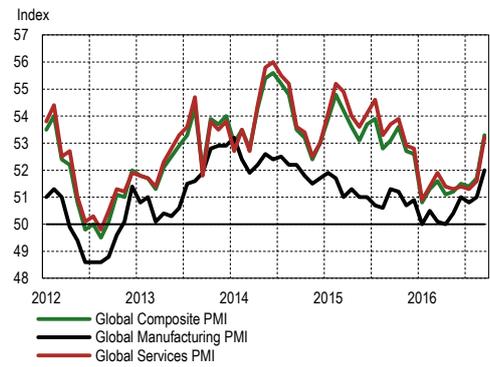
	2015	2016*	2017*
Real GDP change, per cent.			
Global	3.2	3.1	3.4
Advanced economies	2.1	1.6	1.8
US	2.6	1.6	2.2
Euro area	2.0	1.7	1.5
UK	2.2	1.8	1.1
Emerging market economies	4.0	4.2	4.6
China	6.9	6.6	6.2
Russia	-3.7	-0.8	1.1
Inflation, percentage			
Advanced economies	0.3	0.8	1.7
US	0.1	1.2	2.3
Euro area	0.0	0.3	1.1
UK	0.1	0.7	2.5
Emerging market economies	4.7	4.5	4.4
China	1.4	2.1	2.3
Russia	15.5	7.2	5.0

Source: IMF.

* Projections.

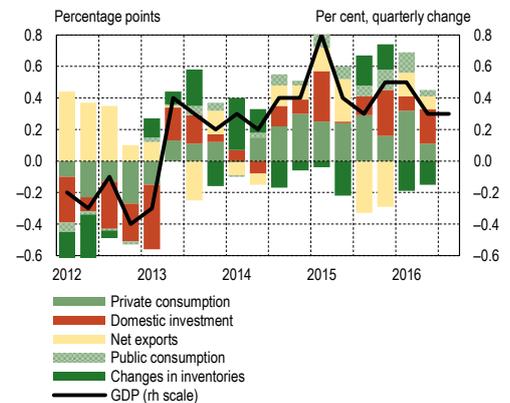
Regardless of the UK's decision to withdraw from the EU, global confidence indicators did not deteriorate over the past few months.

Chart 1. Development of Purchasing Managers' Indices



Euro area real GDP growth amounted to 0.3–0.5 per cent over the past few quarters and was mainly driven by domestic demand.

Chart 2. Development of euro area real GDP



Despite the various shocks, economic growth in the euro area remained stable and amounted to 0.3–0.5 per cent in the past few quarters. Real GDP growth was mostly determined by domestic demand, particularly household consumption, which was positively affected by low interest rate environment, improvement in the labour market situation, a neutral fiscal stance, and low commodity prices. Development of other contributions to GDP was weaker: despite low interest rates and various investment initiatives, investment growth remained modest and export growth has also slowed down in the first half of the year. Such export development was determined by weaker foreign demand and the lessening positive effects of previous depreciation of the euro.

The growth in major Lithuania's export markets remains mixed.

The downturn of Russia's real GDP decreased in the first half of the year, while economic recovery is expected next year. However, the projected economic growth for Russia is slow (up to 1.1%). Although some indicators show improvement of the economic situation (stronger rouble, decreased inflation, increase in industrial production), retail sales and investment continued to fall. The situation of public finances is on a decline as well: shrinking federal budget income, increasing deficit, and depleting reserve funds. This year, the economic situation in Latvia, Estonia, and Poland was particularly negatively affected by the temporary decline in the use of funds from the EU multiannual financial framework (2014–2020). Therefore, in the first half of the year, investment in the aforementioned countries decreased or grew at a much slower pace, which inhibited the development of real GDP. German economic growth in 2016, on the contrary, is expected to be the most rapid over the past 5 years. The significant contributors to growth are robust household consumption and government expenditure, which has increased in part because of the need to integrate a large number of migrants. The good situation of Germany's public finances (budget surplus is expected until 2020) and the fiscal space available allows the country to increase some social benefits and investments, which in turn promote the expansion of the economy.

II. MONETARY POLICY OF THE EUROSYSTEM

The Eurosystem continued implementing the accommodative monetary policy and announced a plan to maintain it for a long time. In order to achieve substantial changes in inflation trends and its expectations as well as sustainable economic growth of the euro area countries, the Eurosystem maintained low official interest rates and claimed that they would not change or remain lower for a long time, much longer than the implementation of the extended APP. The Eurosystem continued and augmented the expanded APP and started a new series of TLTRO and purchases of corporate bonds.

Having reduced the ECB interest rates to new record lows in March 2016, the Eurosystem has not changed them since then. The Governing Council of the ECB lowered the interest rate on the deposit facility from -0.30 to -0.40 per cent¹ in March 2016, the interest rate on main refinancing operations (MRO) was set at 0 per cent, and the rate on the marginal lending facility was lowered from 0.3 to 0.25 per cent. Market expectations of their further decrease were considerably lowered due to prevailing opinion that the possibilities of further reduction and maintaining negative ECB interest rates for a longer time period are limited because of increasing side effects.

The Eurosystem continued the asset purchase programme enlarged in March 2016.² The current horizon for the expanded APP is 25 months (until the end of March 2017 at least), but the programme and reinvestment deadlines will depend on whether the Eurosystem succeeds to achieve the goal of the programme – to return to a sustainable inflation rate consistent with the main monetary policy objective, i.e., that the inflation is below but close to 2 per cent in the medium-term. After adoption of the Governing Council's decision to enlarge³ the expanded APP in March 2016, the total programme volume reached EUR 1.74 trillion, boosting the Eurosystem's balance sheet almost 2.3 times in comparison to the level before the programme.

The public sector purchase programme is the main component of the expanded asset purchase programme. From March 2015 to October 2016, the Eurosystem purchased debt securities for EUR 1,353.2 billion, of which bonds of the public sector accounted for the major share: on average, 85 per cent per month. As of June 2016, the expanded APP was enlarged by the purchase of corporate bonds, which on average accounted for 10 per cent of the assets purchased under APP per month.

The expanded asset purchase programme reduced bond yields; however, their dynamics varied since the launch of the programme and are now significantly increased. Bond yield dynamics varied due to a variety of factors. Varying medium-term expectations about euro area inflation, economic growth, and the Eurosystem's monetary policy as well as possible consequences of the UK's withdrawal from the EU and the challenges faced by individual Member States affected bond yields during the implementation of the programme. Lately, the markets saw an increase in expectations that the central banks of advanced economies would not maintain the non-standard and exceptionally accommodative monetary policy for a long time. In addition, the bond yields continued increasing after the US presidential election, because the President-elect Donald Trump has promised to implement fiscal stimulus.

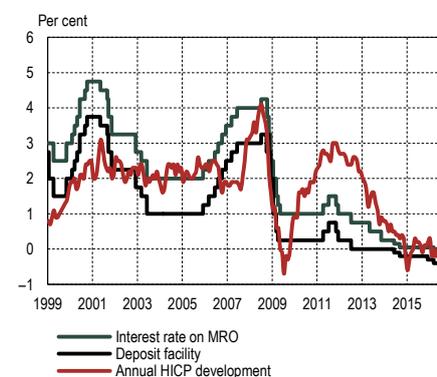
¹ For details about the objectives of negative interest rates, see the Box 'Eurosystem's monetary policy instruments and their application in Lithuania', Lithuanian Economic Review, June 2015.

² For details about the expanded APP and its objectives, see the Box 'Eurosystem's monetary policy instruments and their application in Lithuania', Lithuanian Economic Review, June 2015.

³ For details about the March 2016 decisions of the Governing Council, see 'Monetary policy of the Eurosystem', Lithuanian Economic Review, June 2016.

In response to sluggish euro area economic recovery and falling inflation, the Eurosystem has been gradually cutting ECB interest rates since 2011.

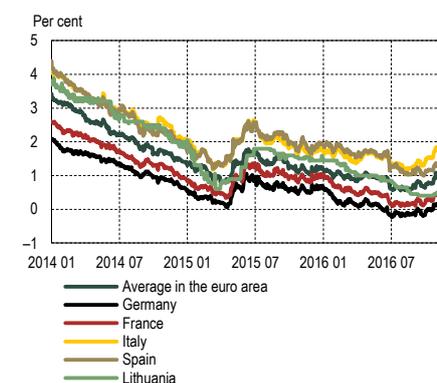
Chart 3. Official ECB interest rates and inflation



Source: Thomson Reuters.

The expanded asset purchase programme reduced bond yields; however, their dynamics varied since the launch of the programme.

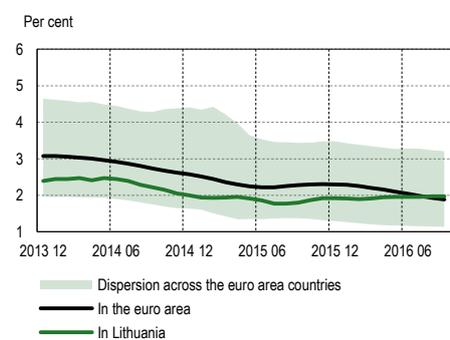
Chart 4. Annual yields on euro area government bonds with a maturity close to 10 years, issued in national currencies



Sources: ECB and Thomson Reuters.

Eurosystem's monetary policy instruments contribute to favourable financing conditions for households.

Chart 5. Average interest rates on new MFI housing loans



Sources: ECB and Bank of Lithuania calculations.

Note: 3-month moving average; interest rates in Greece have not been included due to uncommon economic conditions.

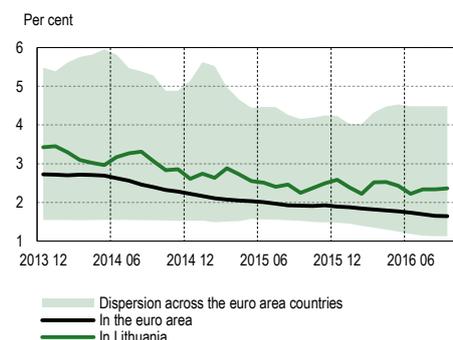
The Eurosystem's monetary policy instruments contribute to favourable financing conditions for households. In 2015 and 2016 (September), the weighted average of interest rates for new loans to non-financial corporations in the euro area decreased by 0.6; the difference between the highest and lowest average interest rates in individual Member States was 0.3 p.p. In the same period, the weighted average of interest rates for new housing loans decreased by 0.7 p.p.; the difference between the highest and lowest average interest rates in individual Member States was also 0.7 p.p.

Favourable financing conditions contribute to the euro area real economy crediting. Loans to non-financial corporations in the euro area and housing loans for households in the euro area continued growing in 2016 and, in September, annual growth of these loans amounted to 1.9 and 1.8 per cent respectively.

The Eurosystem's accommodative monetary policy has a positive effect on Lithuania's economy mainly through the exporting sector. According to ECB experts, the large-scale accommodative monetary policy implemented by the Eurosystem will lead to 1.6 per cent cumulative impact on the actual and projected euro area GDP in 2015–2018. Higher demand in the euro area and the decrease of the euro exchange rate provides more opportunities for our country's export. According to the Bank of Lithuania, the accommodative monetary policy will increase the growth of Lithuania's real GDP by 0.4 and 0.3 p.p. in 2016 and 2017 respectively.

The Eurosystem's monetary policy instruments also contributed to more favourable financing conditions to non-financial corporations.

Chart 6. Average interest rate on new MFI loans to non-financial corporations

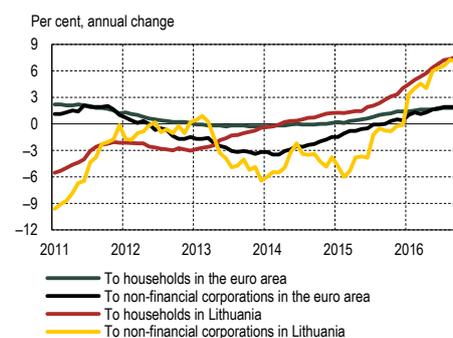


Sources: ECB and Bank of Lithuania calculations.

Note: 3-month moving average; interest rates in Greece have not been included due to uncommon economic conditions.

The Eurosystem's favourable financing conditions contribute to the euro area real economy crediting.

Chart 7. Dynamics of MFI loans to households and non-financial corporations in the euro area and Lithuania



Sources: ECB and Bank of Lithuania calculations.

Note: loan balances were adjusted for the sales and securitisation of loans.

III. REAL SECTOR

After a significant slowdown in 2015, the development of Lithuania's economy has grown stronger. However, this improvement is smaller than expected. The previous slowdown in economic growth was largely influenced by the exporting sector, which has also contributed significantly to the current expansion. It managed to reorient part of activities from CIS countries undergoing economic difficulties to other regions that were developing faster. Due to employee-favouring developments of the labour market, especially the rapid growth of wages, domestic demand remained strong and was still the main contributor to economic growth. However, there also are factors inhibiting economic growth, one of the major ones being the temporary decrease in the use of EU funds. This has a significant influence on the development of investment and contributes to lower activity in the construction sector.

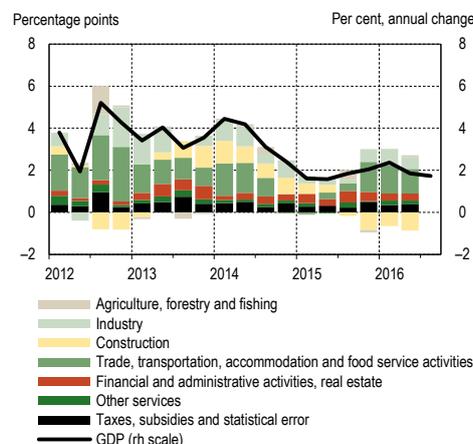
Export of both services and goods recovered this year. The recovery of the export of services was mainly influenced by transport and storage services, while the export of goods – by manufacturing. Increased activity of transport and storage services was determined by the ability of Lithuania's enterprises to find new trade partners in Western markets; this is especially the case with road transport enterprises. However, this reorientation of road transport enterprises, determined by trade restrictions imposed by Russia, had a negative effect on Lithuania's warehousing and support activities for transportation. With the depletion of orders from the Russian market, road transport enterprises reoriented to the Western countries and are focusing on cargo transportation between the Western countries and, if necessary, use warehousing and support activities for transportation of those countries, which forces the Lithuanian enterprises providing such services to look for other clients. Manufacturing enterprises also managed to recover after the stagnation in the first half of 2015. Increased activity, just like in the transport sector, was related to accelerated growth of sales in foreign countries. It should be noted that in the first half of 2016, the level of capacity utilisation of manufacturing enterprises' was the highest since the beginning of the publication of data; however, their investment in tangible fixed assets did not grow or have declined in the last three quarters. In part, such development of investment was affected by a temporary decrease in the use of EU funds. However, if the development of investment does not change, manufacturing activity may be suppressed by the lack of production capacity.

Economic growth in Lithuania is significantly influenced by the growing activity of the trade sector, which is determined by strong domestic demand. One of the key factors determining domestic demand is the situation in the labour market, favourable to households, i.e., rapid wage growth. However, the rising wage bill was practically sole factor that increased the disposable income of households. Income from many other sources (economic activity, accumulated capital, transfers from abroad) was declining.

Among the main economic activities, only the construction sector is declining. In the first half of 2016, the volume of construction of non-residential buildings and civil engineering works has decreased significantly. This development was significantly affected by the decrease in the use of EU funds. Only the volume of the construction of residential buildings was increasing. The growth of this type of construction was affected more by reconstruction, repairs, and restoration work, than by the construction of new residential buildings. The decrease in the activity of the construction sector is affecting Lithuania's economy directly as well as indirectly. The latter includes the influence of much slower growth of wage bill in the construction sector on household consumption and the impact of the decline in orders in the construction sector on other economic activities. This also is a significant negative contribution to economic development.

The slowdown in economic growth in 2015 and strengthened development in 2016 were largely influenced by the exporting sector: industry and transportation.

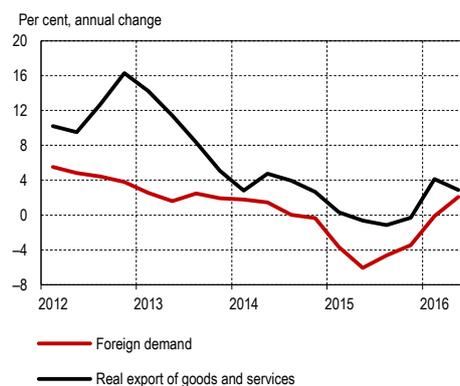
Chart 8. Contributions to real GDP by expenditure approach



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Exporters' ability to reorient their activities to faster developing regions and the revival of external demand determined the growth of real export, particularly services.

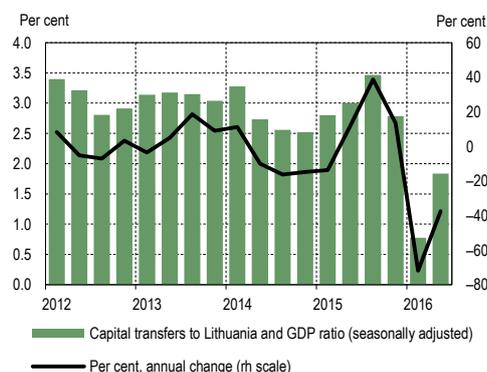
Chart 9. External demand and real export of goods and services (at constant prices, seasonally adjusted)



Sources: ECB, Statistics Lithuania and Bank of Lithuania calculations.

Among the main economic activities, only construction is declining. A significant influence on the development of this sector is the decrease in the use of EU funds.

Chart 10. Capital transfers to Lithuania (at current prices)



Sources: Statistics Lithuania, Bank of Lithuania, and Bank of Lithuania calculations.

IV. LABOUR MARKET

Emigration contributes to accelerating decline in the working-age population. In the first six months, the working-age population decreased by 1.8 per cent per year, which is 0.6 p.p. more than the typical decline during the period of economic recovery. The emigration increased significantly in early 2015, and grew even further in mid-2016. In early 2015, the households started seeing their and the country's economic situation as deteriorating for the first time in the whole period of economic recovery. This downturn as well as emigration could have been a result of the decline in the construction sector, which also started at that time. However, only half of the increase in emigration in 2015 was a result of Lithuanian citizens leaving the country, the other half was associated mainly with the citizens of Russia, Ukraine and Belarus. Previously, their emigration had hardly contributed to the general emigration dynamics; however, in 2015, it could have been partially influenced by stricter provisions related to temporary residence permits in the Republic of Lithuania for foreign citizens.⁴ The reasons behind a further increase in emigration in 2016 have not been determined yet.

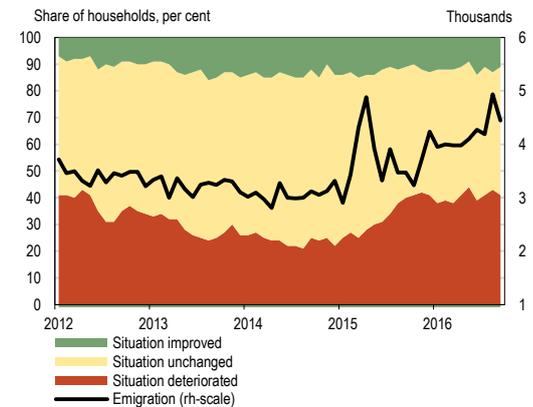
The increase in jobs is noticeably slower. In the first half of the year, it increased by only 1 per cent, which is half the average of the economic recovery period. Slower growth was determined by construction and industry. The situation in the construction sector is worsening: the number of construction enterprises facing insufficient demand was increasing and the volumes of construction work dropped quite sharply. This was the reason for cuts in jobs in construction enterprises. The number of jobs increased in the industrial sector, but the increase was much slower. This trend prevailed in many industries: food, wood, furniture, and equipment manufacturing. However, other indicators do not show that the situation in industry is poor: production grew and the confidence indicators were quite good. Two economic activities most related to Russia's market – trade and transport – recovered, as the enterprises managed to reorient part of their activities to Western countries. In these companies, jobs increased at a pace similar to that before the economic downturn in Russia.

Hiring, emigration, and the implementation of labour market measures continued to push the unemployment rate down. In the first half of 2016, the unemployment rate was 8.2 per cent, a decrease of 1.5 p.p. year on year. The situation of unskilled individuals related to structural unemployment in the labour market considerably improved. Their unemployment, which had not decreased and remained over 30 per cent for a long time, has dropped significantly over the past two years and amounted to 20 per cent in the second half of the year. It does not mean that these individuals have withdrawn from the labour market, because the employment of unskilled individuals has increased considerably. This may have been due to more intensive implementation of labour market policy measures and a shortage of skilled employees, which lead to employment of less skilled individuals. The unemployment rate of skilled employees also declined, standing at 6.6 per cent in the first half of the year.

Increasing shortage of employees and rising minimum wage contribute to rapid annual wage growth. In the first half of the year, it amounted to 7.5 per cent, an increase of 1.3 p.p. from the second half of 2015. Relatively large part of wage growth is related to the increasing shortage of employees. Mid-year, the share of the enterprises facing this problem stood at 13.2 per cent, an approximate 2 per cent increase from 2015. The shortage of employees is increasing not only due to the falling unemployment rate, but also due to high emigration, and the decreasing number of young individuals entering the labour market. Rapid wage

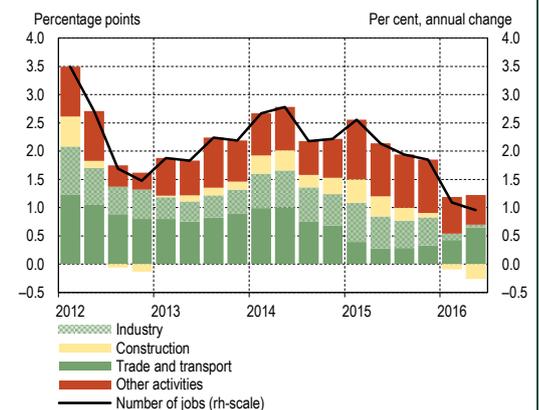
Households see their financial situation as worse, which contributed to increased emigration.

Chart 11. Dynamics of the financial situation of households over the past 12 months and emigration



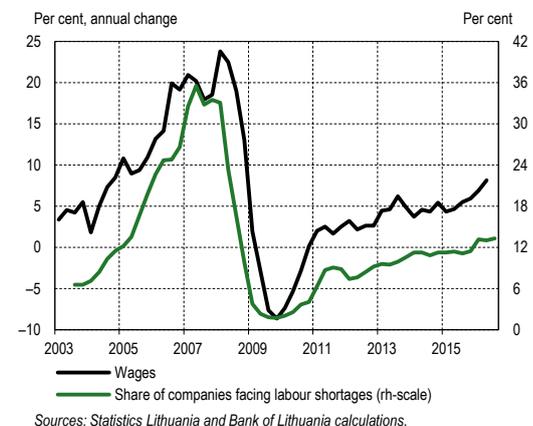
Growth in the number of jobs was weaker due to the downturn in the construction sector and the growth in jobs in industrial enterprises has stalled.

Chart 12. Contributions to job dynamics



Increasing shortage of employees is one of the contributions to rapid wage growth.

Chart 13. Wage growth and proportion of corporations whose activity is limited by the shortage of employees



⁴ See <http://osp.stat.gov.lt/informaciniai-pranesimai?eventId=105689>.

growth is also related to two minimum wage increases (in July 2015 and January 2016) by EUR 25 each time (to EUR 350).⁵ This is a significant rise: a higher 12-month increase was seen only in 2008 and 2013. Compared to other EU countries, it is also among the largest. If the situation where wages grow rapidly and labour productivity hardly increases will continue for a longer period, Lithuanian companies may find it more difficult to compete with foreign producers.

⁵ Wages also grew in July 2016, but this did not affect wage growth in the first half of the year.

V. EXTERNAL SECTOR

The export results for 2015 were better than a year ago. Real export indicators for the first 8 months were especially positive. The nominal value of all exports grew slower due to sharper drops or smaller increases in the prices in euro of the majority of goods exported by Lithuania compared to 2015. Nominal data of the first three quarters show that exports of Lithuanian goods, excluding mineral products, increased by 3.6 per cent, 1 p.p. more than last year after the downturn of exports to CIS countries. However, the major part of export development was due to a good harvest in 2015, as the greater part of it was only exported in 2016. This year, the harvest is predicted to be around 11 per cent poorer, which will result in a downturn of exports of agricultural products in late 2016 and the first half of 2017. Re-exports, excluding mineral products, remained almost unchanged, while the drop in exports of mineral products (following a fall in oil prices) impeded overall nominal export development. However, the latter factors are less significant, particularly due to the fact that real exports of oil products remained almost unchanged.

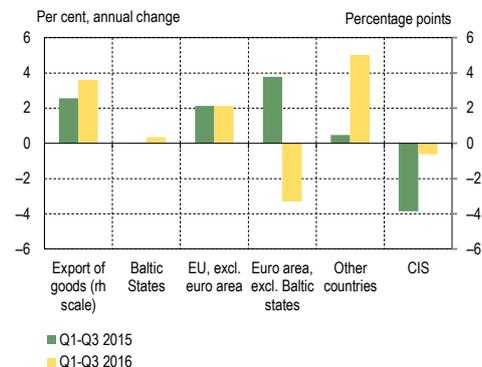
However, development of exports was limited by external factors: slow global growth of demand for imports and depreciation of the Russian rouble and the British pound. The slow increase of global imports of goods is predominantly a result of reorientation to domestic consumption in China, continuing recession in Russia, slower growth of the US economy, and sluggish economic recovery in the euro area. Moreover, in 2016, the exchange rate of the Russian rouble and, after the referendum in the UK, the pound dropped against the euro. Therefore, Lithuania's export opportunities to these countries worsened due to decreased purchasing power and increasing competition with local manufacturers. Slow growth of international trade leads to slower growth of imports in the euro area, the main trade partner of Lithuania, and exports to this region is even more difficult. Imports of the CIS countries decreased in the first half of the year; however, it seems to have reached the threshold in the summer of 2016: Russia's imports are no longer falling and Lithuania's exports to CIS countries have even grown slightly.

Fertilizer exports also contributed to slower development of exports of Lithuanian goods. In the first three quarters of 2016, fertilizer exports decreased and Lithuania's fertilizer exports market share in the EU shrank quite significantly. Poorer results were partially determined by the need for repairs. Moreover, competition in the global fertilizer market is intensifying and fertilizer prices are falling. Therefore, it is expected that the current plans to diversify the manufacturing and exports of the chemical industry sector goods (e.g., towards production of food-grade phosphoric acid) will be viable and allow gaining a competitive advantage. Lithuania lost market shares in other industries as well, including the markets of vehicles (exports of boat parts and bicycles decreased), textiles, and clothing.

Export results to countries other than the CIS and EU countries were better. An important reason behind the growth of exports to these countries was the good harvest of the previous year. However, exports to the US, where exports are more diversified, also increased. Lithuania's export market share in these countries is relatively low. However, export of Lithuanian goods to these countries is growing much faster than their demand for imports, signalling Lithuania's ability to compete in these countries. Moreover, the approval of the European Parliament on the EU-Canada Comprehensive Economic and Trade Agreement (CETA) is pending. If it is granted (expected at the beginning of 2017), part of the CETA will come into effect. Although research of this agreement's impact on Lithuania has not been carried out, the findings of the study carried out by the governments of the EC and Canada indicate that CETA will increase trade between the EU and Canada, while similar agreements (e.g.,

Low demand for imported goods in the euro area and CIS countries undermined Lithuanian export performance in 2016.

Chart 14. Lithuania's exports, excluding mineral products, as broken down by country groups



Sources: Statistics Lithuania and Bank of Lithuania calculations.

The decrease of Lithuanian goods export market shares in 2016 was most determined by poor development of fertilizer exports.

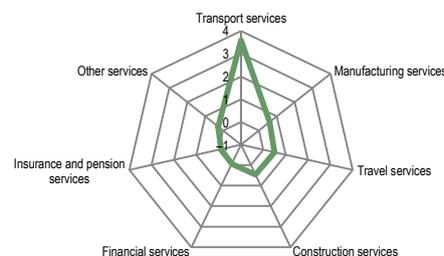
Chart 15. Nominal exports of Lithuanian goods to the EU and EU global imports of goods, excluding mineral products (first 8 months of 2016).



Sources: Eurostat, Statistics Lithuania and Bank of Lithuania calculations.

Export of services is a significant contribution to the improvement of the current account balance, but is not very diversified.

Chart 16. Lithuanian foreign trade in services balance, average of 4 quarters up to Q2 2016 (per cent, compared to GDP).



Source: Bank of Lithuania.

EU-South Korea Free Trade Agreement) have already brought benefits according to the EC's preliminary estimates. Moreover, Lithuanian authorities support the CETA. Since this agreement provides for lower customs duties, an increase of exports of furniture, textiles, and agricultural products to Canada is expected.

In 2016, the current account is close to being balanced, but largely due to temporary factors. In 2016, the current account became balanced due to growing surplus of trade in services and declining deficit of trade in goods. The deficit of trade in goods decreased due to temporary factors: exports of good harvest, lower prices of energy products, and reduced imports of investment goods. With the revival of economic development (increase of global prices of energy raw materials, more active investment in Lithuania), the balance of trade in goods could deteriorate again. The balance of trade in services improved due to more sustainable factors: increased export of a variety of services, in particular to the EU. However, export of services is not very diversified: around 57 per cent of export of services consist of transport services (the ratio has lately been decreasing), while financial and insurance services account for only 1 per cent of service exports.

In 2017, Lithuanian exports, excluding mineral products, are expected to grow at a similar pace as in 2016. Export will grow due to increasing global real imports, while the prices are not expected to fall. However, development of export will be impeded by the poorer harvest in 2016.

VI. PRICES AND COSTS

Annual HICP inflation in January–October 2016 was low, but positive (0.5%). In January 2016, annual inflation in Lithuania entered positive territory mainly due to a slowdown in the annual decrease of fuel price, and remains positive to this day. Positive inflation was also determined by changes in other components of the consumer's basket of goods: slower annual fall of administered prices and faster annual growth of prices for food products, beverages, and tobacco. Current moderately positive inflation in Lithuania is not unique, because the annual drop in energy prices has been decreasing in almost all EU countries since January, reducing the negative impact on the overall increase of prices.

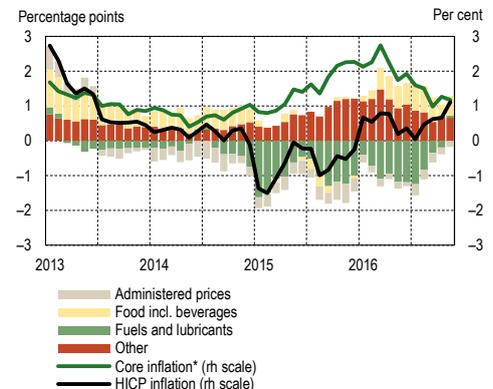
The main factor influencing the increase of inflation in Lithuania is a slower decline in the price of fuel. In January 2016, Brent crude oil prices dropped to lows of USD 32 per barrel; however, the price has been gradually increasing since then. In October 2016, the average Brent crude oil price was USD 51 per barrel, which is 59 per cent more than in January. The increase in oil prices is explained by the decrease in supply due to slowing production. The expectations for possible regulation of the oil output level after the meeting of members of the Organization of Petroleum Exporting Countries (OPEC) also contributed to the increase in oil prices. The trend is evident: in the run-up to the OPEC meeting, the oil prices rise; if an agreement is not reached, they fall slightly and start increasing again before the next meeting. During the meetings in April and June 2016 and the informal meeting in September, participants failed to regulate the oil output level, thus the growth of oil prices has slowed down. However, with the next meeting taking place in November, oil prices dropped to USD 47 per barrel.

Another price group dependent on global energy commodities, administered prices, had a less negative impact on inflation. At the beginning of 2016, the annual drop of heat energy, gas, and electricity prices slowed down. However, electricity and gas prices were reduced in July 2016. Heat energy prices have been gradually decreasing since February and only increased in October. Compared to January, the heat energy price was 14 per cent lower in October. In the second half of the year, the drop in administered prices accelerated and was similar to the annual average of 2015 (around 4%). As in 2015, thermal energy prices had the most negative effect on the general price level in the administered prices group.

From January 2016, prices for food, beverages, and tobacco have had a positive effect on the headline inflation. Food prices were boosted by global prices of food commodities, which have been rising from the beginning of 2016. This affected the prices for food producers and consumers in Lithuania. According to the global Food Price Index of Food and Agriculture Organization of the United Nations, global food commodity prices were going down from 2012 and the lowest drop was registered in 2015, when the global Food Price Index decreased by one fifth. However, in 2016 this index rose steeply and in August was already higher than in the previous year. The prices grew in all five major product groups, including grain, meat, dairy, vegetable oil, and sugar; however, the prices of sugar and vegetable oil grew most rapidly. The index is expected to rise in the future. Moreover, increasing oil price also contributes to the increase of food raw products. Food prices in Lithuania were also modestly affected by excise duties for processed tobacco, which were increased in March 2016 in order to gradually reach the minimum excise level in the EU as well as excise duties on alcoholic beverages.

In 2016, annual inflation in Lithuania was positive: compared to 2015, it was less negatively affected by fuel and administered prices, but food prices had a positive effect.

Chart 17. Contributions to annual HICP inflation

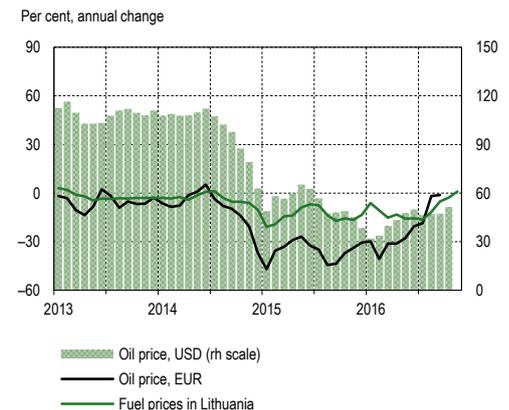


Sources: Statistics Lithuania and Bank of Lithuania calculations.

* Change in HICP excl. food, fuels and lubricants, and administered prices.

Oil prices rose in 2016

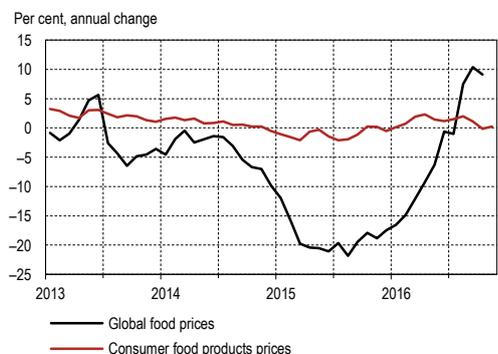
Chart 18. Dynamics of global oil prices and fuel prices in Lithuania



Sources: Reuters, Statistics Lithuania and Bank of Lithuania calculations.

In 2016, global food prices grew rapidly.

Chart 19. Food price dynamics



Sources: Food and Agriculture Organization of the United Nations, Statistics Lithuania and Bank of Lithuania calculations.

Average core inflation in January – October 2016 was 1.8 per cent (annual 2015 average – 1.5%), considerably higher than the average headline inflation. Core inflation (based on prices of market services and industrial goods) has been consistently increasing since mid-2014; however, a decline has been observed since April 2016. Core inflation decreased due to the fall in annual growth of prices of both services and industrial goods. Service prices were consistently increasing at the beginning of the year, so their average growth in January–October is quite high and stands at 3.7 per cent. The growth of service prices has been fuelled by domestic demand that has been growing for quite a long time due to positive changes in the labour market – rising employment and increasing wages. The decline in the growth of service prices in the second half of the year was affected by the increase in housing rental prices growing much slower than at the beginning of the year, cheaper recreation services, such as package holidays, and lower prices of telephone services.

Higher headline inflation rates in the first half of 2016, year on year, was determined by the development of prices for industrial goods. However, started at the end of 2015, annual growth of prices for industrial products lasted for only about a year and entered the negative territory again in September 2016. Such development of industrial goods prices was a result of clothing and footwear, which account for a significant share of the consumer's basket of goods. Their prices grew rapidly in the first half of the year and starting from July, annual price growth became negative.

The fact that the projected inflation in the euro area is low allows expecting a small but positive inflation in Lithuania. It is likely that next year the global prices for energy raw materials will be higher than this year and the price of energy for consumers will stop decreasing. Non-energy prices should not rise more quickly than in 2016, and among other things, the rise should be driven by the increasing prices of raw materials for food. Thus, various institutions forecast inflation in the euro area in 2017 to stay positive and be around 1 p.p. higher than in 2016. The IMF expects inflation in the euro area to stand at 0.3 per cent in 2016 and at 1.1 per cent in 2017 (as announced in October this year). The results of the ECB Survey of Professional Forecasters (published in October) also indicate an inflation of 0.2 per cent in 2016 and 1.2 per cent in 2017.

VII. FINANCING OF THE ECONOMY⁶

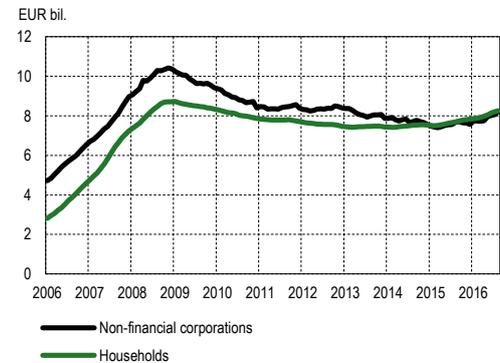
The portfolio of MFI loans to the private non-financial sector has lately been growing rapidly. These loans accounted for 7.3 per cent more in September 2016 year on year. Such growth is much faster compared to September 2015, when the increase in the loan portfolio was only 0.9 per cent. However, the portfolios of loans to both non-financial enterprises and households are still smaller than at the beginning of the financial crisis (2008–2009), when their values reached the highest levels.

The growth of the portfolio of household loans was driven by rapidly increasing wages, low interest rates, and relatively high housing rental return on investment. In September 2016, the portfolio of housing loans to households surged by 6.7 per cent year on year, while the portfolio of consumer and other loans grew by 11.0 per cent. In total, the portfolio of loans to households grew by 7.6 per cent and reached EUR 8.3 billion (in January 2009, it stood at EUR 8.7 billion). Household borrowing should also grow in the nearest future. This is driven by the rapid growth of wages, relatively low financial liabilities-to-financial assets ratio of households, which stood at 38 per cent in the second quarter of the year (in the second quarter of 2009, this ratio reached its highest level and amounted to 50%), and low interest rates. Moreover, the housing affordability⁷ level is among the most favourable to households throughout the index calculation history and the number of households willing to buy housing is slightly higher in comparison to last year. In addition, the number of households that think that it is now opportune to make larger purchases is increasing as well as the amount the households are willing to pay for them. Large purchases contribute to the growth of the loan portfolio, because in addition to other sources they are also financed with borrowed funds.

The portfolio of loans to non-financial corporations is growing and loans to small and medium-sized enterprises are contributing to the growth. This loan portfolio is growing due to increasing income of enterprises and low interest rates. In September 2016, the portfolio of non-financial corporations grew by 7.1 per cent year on year (4.2%, if two large loans are deducted) to EUR 8.3 billion (EUR 10.4 billion in November 2008), although last year the corporate loan portfolio was shrinking. Positive contributions to the growth were the trade, transport, and real estate sectors, while negative – construction and manufacturing activities. In addition, judging by loans granted by MFIs, the amount of loans to small and medium-sized enterprises (SMEs) is growing: the value of loans (up to EUR 250 thousand) granted in 9 months of this year accounted for 18.1 per cent of all MFI loans (last year the respective indicator was 11.7%). The amount of SME loans is boosted by both growing demand and increasing supply. Against the backdrop of low interest rates, the banks are looking for higher return on equity opportunities and are improving price and non-price terms of such loans. In the 9 months of the year, average interest rates of new SME loans were 2.9 per cent, which is 0.5 p.p. less than last year, but still more than the average interest rate of corporate loans. It is likely that the portfolio of loans to non-financial corporations will continue growing due to favourable conditions. Moreover, corporate debt is relatively low. In the second quarter of 2016, their financial liabilities-to-financial assets ratio stood at 70 per cent, while a year ago it was 71 per cent (it reached its highest level of 93% in 2008). Banks see the financial situation of enterprises as having improved, which positively affects non-price lending terms of banks.⁸

The portfolio of MFI loans to the private non-financial sector has been growing for some time, but still remained smaller than at the beginning of the financial crisis (2008–2009).

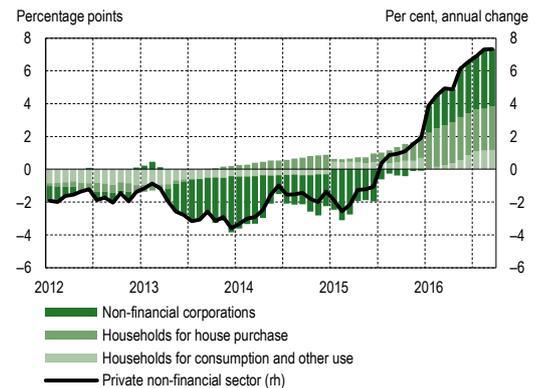
Chart 20. Portfolios of MFI loans to the private non-financial sector



Sources: Bank of Lithuania and Bank of Lithuania calculations.
Note: nominal data.

All parts of the portfolio of MFI loans to the private non-financial sector have been growing.

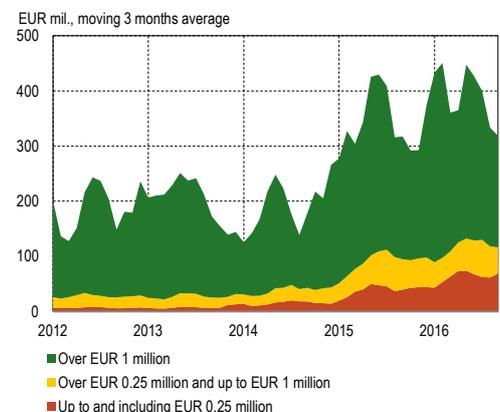
Chart 21. Contributions to changes in the portfolio of MFI loans to the private non-financial sector



Sources: Bank of Lithuania and Bank of Lithuania calculations.

The share of newly granted smaller MFI loans has been growing.

Chart 22. Newly granted loans by loan amount



Sources: ECB and Bank of Lithuania calculations.

⁶ In order to evaluate loans, this section includes MFI data provided by the Statistics Department of the Economics and Financial Stability Service of the Bank of Lithuania, which is adjusted taking into account bankruptcies and mergers in the sector concerned (for more details, see Annex 2 of the Lithuanian Economic Review, December 2014). This data may differ from the data collected from banks for supervision purposes.

⁷ The housing affordability index is calculated by dividing the average annuity housing loan instalment by average net wage.

⁸ For details about assessments by banks operating in Lithuania, see the Bank Survey Reviews published by the Bank of Lithuania.

VIII. GENERAL GOVERNMENT FINANCE

The financial situation of general government has lately been good. The four-quarter (up to the second quarter of this year) ratio of the general government surplus to GDP accounted for 0.4 per cent and was 0.1 p.p. higher year on year, mainly due the increase in government revenue to GDP ratio. Apparently, the main contributions to improved government balance were the eliminated central government deficit and increased local government surplus. The balances of these subsectors were positively influenced by the good condition in the labour market, notably an increase in wages and employment. This led to a rapid increase in revenue from direct and indirect taxes. Improvement in local government revenue collection was also determined by administrative changes, i.e. the increase in the share of personal income tax allocated to municipalities in 2016. Different from the balances of the above subsectors, the balance of social security funds deteriorated in the first half of the year. Although the good situation in the labour market allowed for improved collection of social security contributions, this effect was almost outweighed by a fall in capital transfers. They dropped as a result of a high comparative base: in the first half of 2015, social security funds received revenues related to the decision to compensate the wages to civil servants and received a transfer from another subsector of the government sector intended for pension compensations.

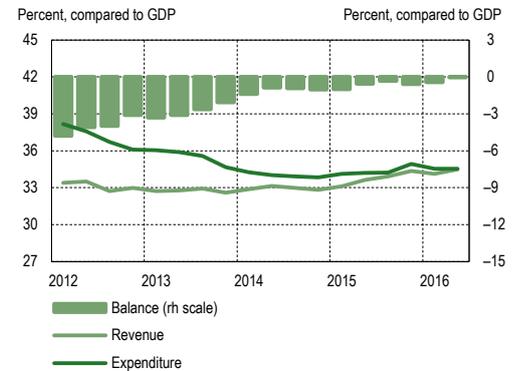
General government finances, when adjusted for one-off factors, are essentially balanced. Revenues from the operations of *SC Deposit and Investment Insurance* are attributed to one-off factors of the last four quarters (up to the second quarter of this year).

Just like last year, the main contributions to growth in government revenue were revenue groups related to growing domestic demand: direct and indirect taxes and social contributions. This income surged due to a significant rise in wages. This factor had a positive effect on households' consumption expenditure, while their increase and administrative decisions, such as the rise of excise tariffs for processed tobacco and alcoholic beverages on 1 March 2016, created conditions for the growth of general government revenue from indirect taxes. However, the positive impact on government revenue was offset by revenue from capital transfers that fell due to a decline in revenue from operations of *SC Deposit and Investment Insurance*.

Government expenditure in the respective period was lower than a year ago, predominantly due to decreased investment. In the first half of 2016, government investment amounted to only half of the amount spent year on year. The fall was a result of lower EU support funding. Aside from a drop in government investment, expenditure was further reduced by a drop in capital transfer costs and lower interest payments. The decrease in capital transfers was determined by the disappearance of need for funds to execute the Constitutional Court decisions, while interest payments declined due to refinancing of previous emissions of more expensive bonds in the context of low interest environment and the decrease in the borrowing needs. However, some factors contributed to the increase of government expenditure, predominantly, an increase in social benefits and higher wages of employees. The latter grew due to the increase of the minimum monthly wage at the beginning of the year as well as last year's decision to increase the wages for lowest-income civil servants. The main reasons behind an increase in social benefits were the increase in pensions at the beginning of 2016 and the increase in insured income, which affected the amounts of social insurance benefits and other social insurance payments.

General government finances, when adjusted for one-off factors, are essentially balanced at the moment.

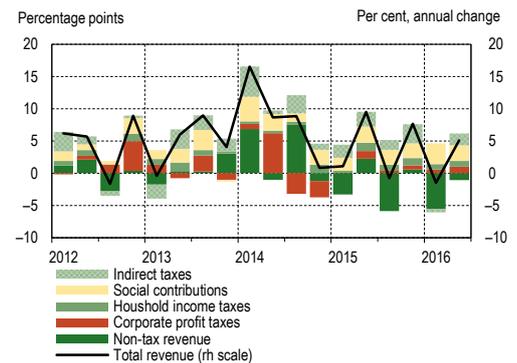
Chart 23. General government revenue, expenditure and balance when adjusted for one-off factors (4-quarter moving sum)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

For a prolonged period, robust domestic demand continued to be the major driving force behind general government revenue growth.

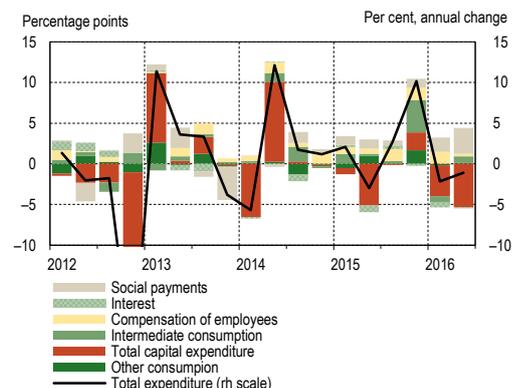
Chart 24. Contributions to general government revenue



Sources: Statistics Lithuania and Bank of Lithuania calculations.

This year, lower government expenditure was predominantly a result of decline in investment due to less active use of EU support funds (share of extraordinary expenditure).

Chart 25. Contributions to general government expenditure



Sources: Statistics Lithuania and Bank of Lithuania calculations.

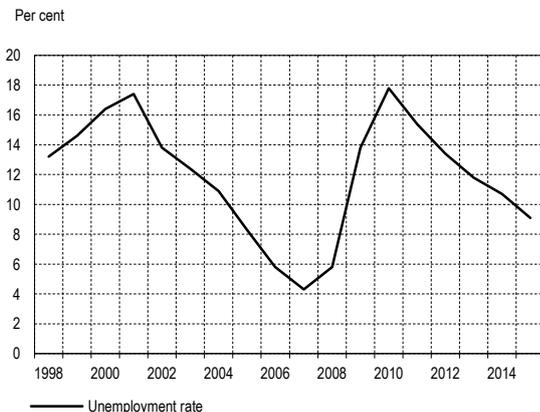
ANNEX 1. Ageing, Pension Reform and Economic Policy Options in Lithuania

Introduction

Since October 2015, Lithuanian policy makers intensified their debate on the Labour Code and other pieces of legislation helping to create a 'New Social Model'. The aim of updating the Labour Code and reforming parts of the taxation and pension system was to promote job creation, reduce the incentives to participate in the informal (shadow) economy as well as ensure fiscal sustainability in an ageing society. The goal of the current analysis is to contribute to this discussion, detailing the potential macroeconomic impacts of ageing and the options available for fiscal consolidation in the presence of a greying population. We focus on the consolidation of the government budget accounting for the interaction between the formal and informal sectors of the economy in terms of employment, production and taxation.

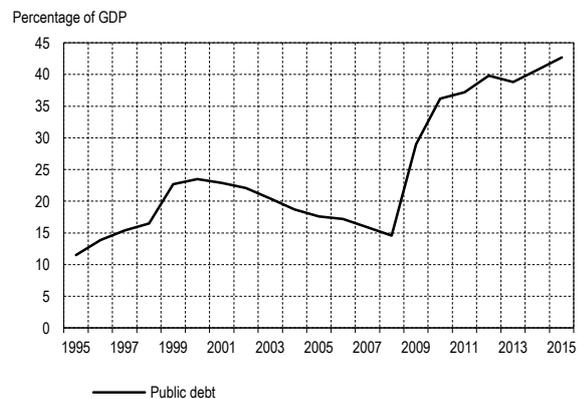
Although Lithuanian unemployment and public debt levels are not extreme when compared to other European countries, several trends are highlighted that we believe are relevant for the current debate regarding the Social Model. After the recent economic crisis, the unemployment rate increased swiftly to almost 18 per cent, later decreasing gradually to stand today at around 9 per cent (Chart A). Emigration has eased the short-term pressure on the unemployment insurance fund yet its persistence following the crisis casts doubt on the health of the labour market and the dynamic of the birth rate in the long-run.

Chart A. Unemployment



Source: Eurostat.

Chart B. Public debt



Source: Eurostat.

Regarding public debt, in the last years Lithuania experienced a steady rise in indebtedness (Chart B). As a consequence, today the public debt-to-GDP ratio exceeds 40 per cent. The majority of the increase took place during and following the crisis, but even after the crisis, debt maintained its trajectory. In spite of this acceleration, the level of government indebtedness is still lower than that of most other European countries.

Concerning demographics, Eurostat projects a much less severe ageing for Lithuania as compared to, for example, Slovakia or the southern European countries. Lithuania also spends relatively less on public pensions today than similar countries do. However, given the recent sharp increase in government debt and assuming no reversal in the observed demographic trends, even a moderate amount of ageing might lead to fiscal strains in the medium term. In this analysis, we quantify the extent to which ageing may increase the budget deficit (public debt) and investigate the macroeconomic consequences of using different fiscal instruments needed to eliminate the above-mentioned budgetary pressure.

1. Overview of Model

We extend the closed-economy version of OGRE, developed by Baksa & Munkacsi (2016), incorporating an international dimension: trading in goods and saving in a foreign asset. OGRE's main novelty is the inclusion of informality in an Overlapping Generations (OLG) framework. It is the first Gertler-type OLG model with informality which takes unemployment into account. The presence of informality is important as it leads to both tax evasion and a lower level of regulation, in line with Williamson (1975). A detailed description of the open-economy model is available in Baksa & Munkacsi (2016).

Considering the OLG setup in more detail, we distinguish two cohorts. The young (the workers) either work and pay labour income taxes or are unemployed and receive unemployment benefits from the government. The old (retired) do not work, but receive public old-age pensions. Population is not constant in our model but fluctuates over time with young people being born and old people passing away with a given probability. Changes in the structure of the population are induced not only by birth and death but also by young people retiring.

There are two types of firms – a physical capital producer and the producers of consumption goods. A physical capital producer invests and provides physical capital for producers of goods. The latter also hires the labour of young cohort and produces a type of good that is either consumed by young and old people, purchased by the government (only formal sector goods), or used for capital production. All goods producing firms pay an extra cost of hiring and bargain over wages with the workers. Furthermore, they are monopolistically competitive and set the price level.

With regard to informality, workers can be employed by formal or informal sector firms. Taxes are avoided in the informal labour and goods markets. Specifically, i) labour income (both the employee and employer) is only taxed in the formal sector; and ii) value-added tax is only paid for goods purchased from formal sector producers. Another major difference between the two sectors is that the formal sector is more regulated than the informal one. Both formal labour and product market rigidities are higher. The two sectors interact through a labour market and a goods channel. The labour market channel refers to workers' ability to switch jobs between formal and informal employment depending on the level of labour income taxation in the formal sector and wages in the informal sector. The goods channel indicates that one unit of consumption from the shadow economy yields lower utility than a unit of consumption from the formal economy – this form of discounting is explained by the lack of consumer protection for goods produced by shadow firms. The public sector only consumes the formal economy's products.

The fiscal sector is rather rich, featuring two sources of public revenues. Government income is composed of labour income taxes (personal income taxes, employee and employer social security contributions) and value-added tax. The government finances government consumption, unemployment benefits and old-age pensions. Government budget deficits are covered through issuance of bonds. Two pension plans are distinguished. In a pay-as-you-go plan, agents who retire receive a pension benefit which is based on their previous wage stream and a pension-wage replacement rate. In a fully funded regime, each worker has a separate account and the savings from that account are used to finance future pension payments.

It is important to note that, by assumption, only the formal sector participates in international trade. Because Lithuania is a very open economy (the degree of openness, measured as the sum of exports and imports in GDP, is around 150%), it is central to consider foreign trade when studying ageing and public policies. Production, consumption and taxation are all heavily influenced by the dynamics of the external sector.

2. The impact of ageing and potential policy responses

We study both the long- and short-run macroeconomic effects of a selection of policies that address the budgetary pressure caused by ageing. By long-run we refer to 100 years, a period representing the working life span of two generations. The first 30 years are also detailed because costs and benefits differ over the long- and short-run indicating the political feasibility of the various policy options.

Population ageing is modelled as a decline in the mortality rate, such that the old-age dependency ratio (the ratio of old to young people) gradually increases by 5 percentage points in the first 30 years and then stabilises at the new level in the following 70 years. Ageing leads to comparatively fewer people working: there is a higher share of retirees as compared to the higher mortality case. This tilts the population structure towards a lower number of active members as compared to the inactive. The available labour supply decreases, as well as GDP per capita. The government's pension expenses increase while tax revenues diminish due to lower consumption of both young and old, leading to a rise in government debt. Both population cohorts decrease consumption and boost savings in expectation of a longer life span. The recognition of a longer life draws more people to search for employment but labour market frictions prevent an immediate absorption of the additional supply.

The list of economic policy instruments that we investigate is detailed in Table A. These measures are needed to counter the budgetary effects of ageing and its potential long-run economic impact. First, we study two labour income tax policies, an increase in personal income tax and employee social security contributions (PIT) and an increase in employer social security contributions (Employer SSC). Then, we focus on two pension reforms, notably, a decrease in the gross pension-wage replacement rate (Repl.) and a decrease in the retirement probability (Ret. prob.), which is a proxy for a retirement age increase. Lastly, further policies are also investigated: an increase in the value added tax revenue (VAT) and a decrease in government consumption expenditure (GC).

Given the 5 percentage point expected increase in the old-age dependency ratio, we alter each fiscal instrument presented, so that public debt remains at its pre-shock levels. Results reported in Table 1 as a percentage change (%) refer to net percentage changes in the considered variable: –1.1 per cent in the case of GDP per capita in the No Consolidation scenario implies that GDP per capita will be 1.1 per cent lower in the lower mortality scenario if the government commits to no reform. Results reported in Table A as a percentage points (% point) refer to differences in the variables: a 0.1 per cent point increase in the share of formal GDP in total GDP if Employer SSC increases refers to the share of formal GDP increasing, for example, from 80 per cent to 80.1 per cent if Employer SSC increases by 3.3 percentage points. All the examples feature the necessary change in the fiscal instrument so as to keep debt constant at the pre-shock level.

Table A. Long-run effects of a 5 p.p increase in the old-age dependency ratio in Lithuania

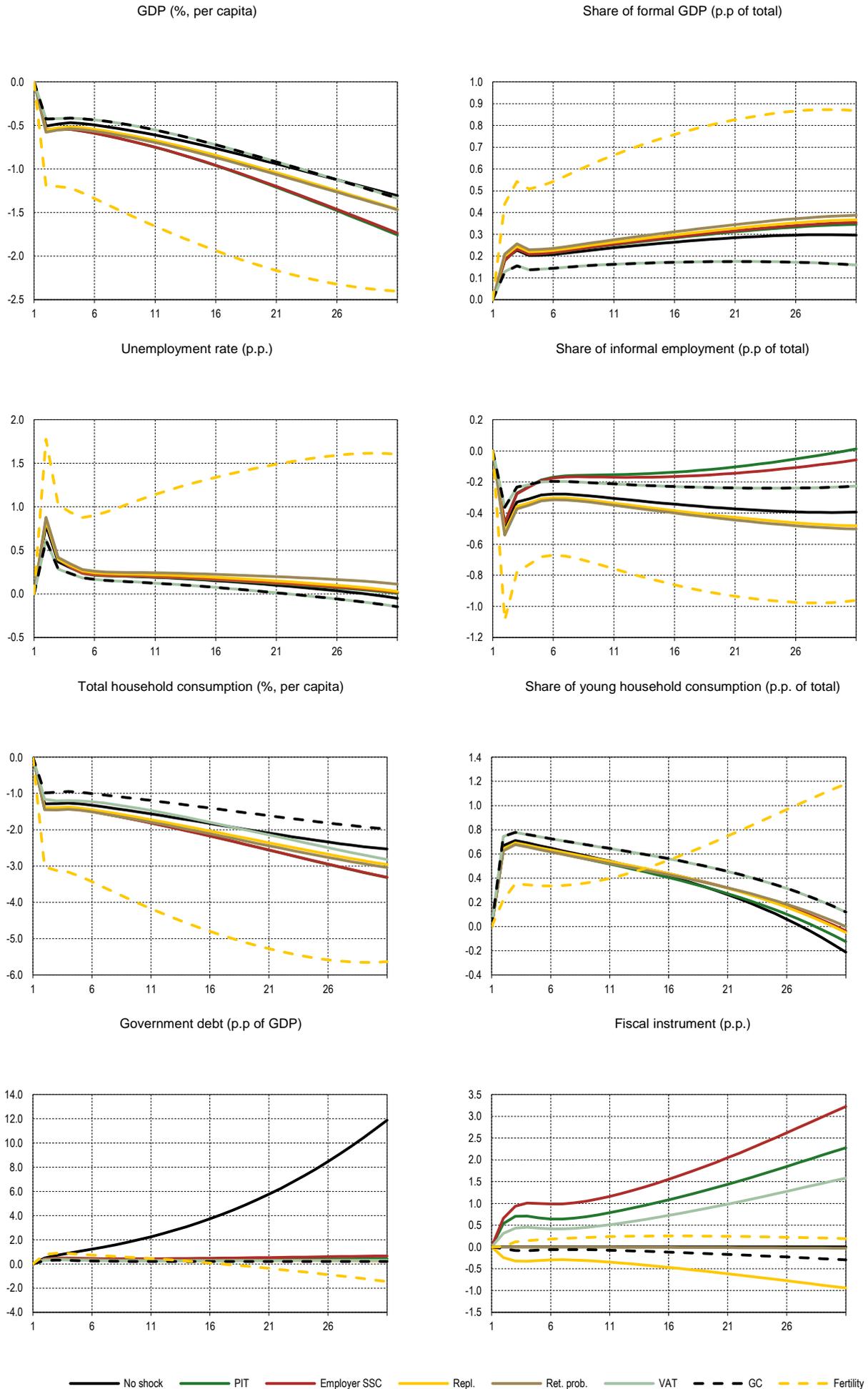
If the government consolidates with	GDP per capita (%)		Share of formal GDP in total GDP (%point)	
	Baseline	Lower level of openness	Baseline	Lower level of openness
No consolidation	-1.1	-0.9	0.0	-0.2
Personal income tax and employee SSC	-1.5	-2.4	0.1	0.3
Employer SSC	-1.4	-2.3	0.1	0.3
Pension-wage replacement rate	-1.1	-1.9	0.1	0.3
Retirement probability	-1.0	-1.7	0.1	0.3
Value added tax	-0.9	-1.7	-0.1	0.0
Government consumption exp./GDP	-0.9	-1.7	-0.1	0.1
Fertility rate	0.1	-0.6	0.0	0.3
If the government consolidates with	Total household consumption per capita (%)		Share of young household consumption in total consumption (%point)	
	Baseline	Lower level of openness	Baseline	Lower level of openness
No consolidation	-1.1	-0.3	-2.8	-3.5
Personal income tax and employee SSC	-2.1	-3.9	-0.9	-0.9
Employer SSC	-2.1	-3.9	-0.7	-0.6
Pension-wage replacement rate	-1.7	-3.2	-0.8	-0.7
Retirement probability	-1.6	-3.1	-0.7	-0.6
Value added tax	-1.5	-3.1	-0.7	-0.5
Government consumption exp./GDP	-0.5	-1.9	-0.7	-0.5
Fertility rate	-0.1	-1.9	1.2	1.9
If the government consolidates with	Unemployment rate (%point)		Share of informal employment in total employment (%point)	
	Baseline	Lower level of openness	Baseline	Lower level of openness
No consolidation	-0.7	-0.8	0.0	0.2
Personal income tax and employee SSC	-0.6	-0.3	0.3	0.2
Employer SSC	-0.6	-0.2	0.2	0.1
Pension-wage replacement rate	-0.6	-0.3	-0.2	-0.4
Retirement probability	-0.5	-0.2	-0.2	-0.4
Value added tax	-0.8	-0.5	0.1	-0.1
Government consumption exp./GDP	-0.8	-0.5	0.1	-0.1
Fertility rate	0.0	0.4	-0.1	-0.4
If the government consolidates with	Gov. debt as a share of GDP (%point)		Instrument (%point)	
	Baseline	Lower level of openness	Baseline	Lower level of openness
No consolidation	75.9	125.1	0.0	0.0
Personal income tax and employee SSC	0.0	0.2	2.6	3.4
Employer SSC	0.0	0.2	3.3	4.4
Pension-wage replacement rate	-0.1	0.0	-1.0	-1.3
Retirement probability	-0.3	-0.1	-0.03	-0.04
Value added tax	-0.1	0.0	1.8	2.3
Government consumption exp./GDP	-0.2	0.0	-0.4	-0.5
Fertility rate	-1.8	-1.8	-0.4	-0.4

Note: The pension-wage replacement rate is gross, while the fertility rate is net. Long-run means 100 years after the shock, while the shock means that the old-age dependency ratio gradually increases by 5 p.p. during 30 years and then it stays constant.

Increases in personal income tax and employee SSC produce the strongest response in GDP per capita among the analysed policy options. This is because young cohort's consumption is strongly affected by this fiscal instrument: their share of consumption in total consumption decreases by 0.9 per cent points with total consumption per capita going down 2.1 per cent. There are small variations in the split of labour between formal and informal.

An increase in the fertility rate, even below its long-run average, is able to fully offset the negative economic repercussion of the increase in the old-age dependency ratio. Nevertheless, this option is not fully under the control of the government. The effectiveness of a state-sponsored programme supporting child bearing depends eventually on a multitude of other factors outside the government's control. In our model, the net fertility rate refers to any increase in population, either through more births or migration.

Chart C. Short-run responses of key macroeconomic variables to selected policy instruments



The short-run impact of the selected policies indicates that the unemployment rate increases rather strongly in the first two years from the implementation of most instruments and then slowly moves towards its long-run value (Char C). The short-run increase in the unemployment rate is caused by the increase in labour income contributions to which companies need to adjust (higher labour costs). The interaction between the formal and the shadow economy has an impact on short-run reactions as well; namely, workers have different incentives if the tax rate changes e.g., as people move out of the shadow sector some of them might first move to unemployment (as it takes time to find a job in the formal economy).

Concluding Remarks

Under the 'No Policy Change' scenario, population ageing increases public deficit and debt. Considering GDP per capita as an evaluation criterion for the selection of policies, Government budget consolidation by PIT appears to be the least preferable, while adjusting VAT (revenue side) or Government consumption (expenditure side) seem to be the most preferable. In practice, a mix of policies can be used to close the ageing-induced fiscal gaps. As different policies have heterogeneous effects on the studied macroeconomic aggregates, the optimal mix will reflect both economic and political considerations.

Bibliography

Baksa D, Munkacsi Z. 2016. A Detailed Description of OGRE, the OLG Model. Bank of Lithuania Working Paper Series. No 31. https://www.lb.lt/darbo_straipsniu_serija_2016_nr_31.

Baksa D, Constantinescu M, Munkacsi Z. 2016. Aging, Informality and Public Policies in a Small Open Economy. Bank of Lithuania Discussion Paper Series. No 2. https://www.lb.lt/discussion_paper_series_2016_no_2s.

Gertler M. 1999. Government debt and social security in a lifecycle economy. *Carnegie-Rochester Conference Series on Public Policy*. 50(1): 61–110.

Williamson O. E. 1975. *Markets and Hierarchies, Analysis and Antitrust Implications: A Study in the Economics of Internal Organization*. The Free Press.

ANNEX 2. Reform of Lithuania's social model: regulation of labour relations

Businesses continually hire and dismiss employees. This allows them to keep up with the changing economic and competitive environment, developments in production technology, etc. However, this frequently happens at the expense of the dismissed employee: they lose their source of income, professional skills and feels a sense of instability and tension due to their deteriorating financial circumstances. Thus, governments try to balance the need for businesses to employ and dismiss employees freely and the need to protect employees from experiencing the hardships of unemployment. The Annex discusses how these aims were reconciled in Lithuania, and how the current state of affairs will be affected by the new social model. The primary focus will be on amendments to the Labour Code, as it is these changes that provoked the most discussion in the public arena.

1. Social models in other countries

The balance between the aforementioned freedom for businesses and the protection of employees is typically achieved through the use of three elements: restrictions on hiring through temporary employment contracts and dismissal (reducing the number of employees fired); unemployment benefits (replacing the employee's lost income); and active labour market policies (ALMPs; helping fired employees find employment). Combinations of these elements – social models⁹ – as applied by developed countries, can be classified into three groups (Blanchard, 2013):

- *The Anglo-Saxon model.* Hiring and dismissal restrictions are low, and the unemployment social insurance system is not generous. This results in intense hiring and firing, shorter unemployment duration and low unemployment rates.
- *The Nordic model* (also known as the flexicurity model). Hiring and dismissal restrictions are moderately strict or strict, the unemployment insurance system is generous, however, unemployment benefits depend on an individual's efforts to find employment, ALMPs play a significant role. This allows the economy to reallocate labour resources and results in low unemployment rates.
- *The Continental model.* Hiring and dismissal restrictions are strict, the unemployment insurance system is generous, but ALMPs play a lesser role. This results in limited reallocation of labour resources across the economy and substantial unemployment rates.

The current Lithuanian social model cannot be unequivocally attributed to any of these groups. It is especially difficult to assess restrictions on hiring and dismissal because the provisions of the Labour Code that regulate them are quite often not enforced. The roles of the unemployment insurance system and ALMPs are clearer, but it would still be useful to analyse the indicators that describe the importance of all three elements within the model and compare them to indicators of other EU Member States.

2. The social model that has been applied so far

2.1. Unemployment benefits and ALMPs

The generosity of the social insurance system for unemployment can be described by two indicators: the unemployment benefit amount and its duration. Benefit amounts are calculated based on the percentage of income lost by the employee that is compensated by the unemployment benefit payout. Compared to the old EU Member States, Lithuania's unemployment benefits are very low and compared to new Member States – benefits are still among the lowest (see Chart A). Much the same can be said of the payment duration, which is one of the shortest in the EU (EC, 2015a). The significance of ALMPs is determined based on spending on ALMPs as a percentage of GDP, and the percentage of the unemployed that are participating in these measures. Spending on ALMPs in Lithuania is the lowest among the old EU Member States, but similar to that of new EU Member States (see Chart B). With respect to the percentage of the unemployed participating in ALMPs, the situation is very similar: among the old Member States only Greece has a lower percent-

Chart A. Unemployment benefit size and duration in 2013–2014.

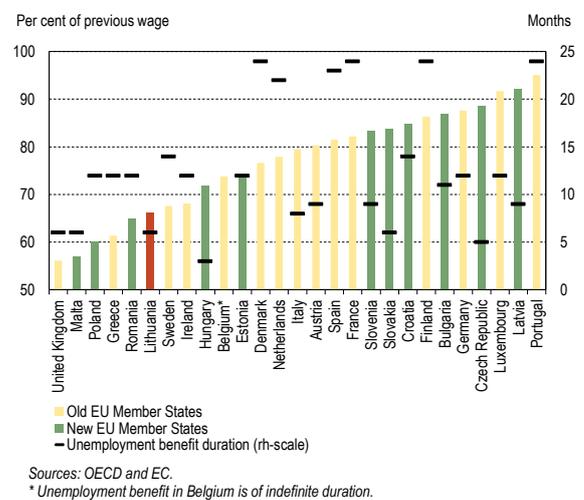
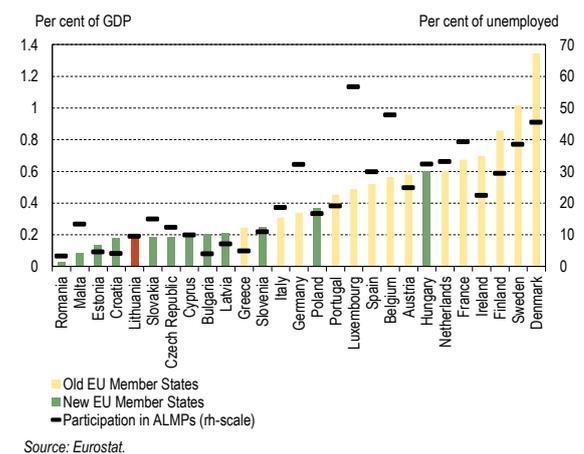


Chart B. Spending on and participants in ALMPs in 2014.



⁹ The term 'social model' is ordinarily used in a much broader sense. It covers many other aspects, e.g., collective labour relations, pension, sickness, maternity and other types of social insurance, health, education and other services.

tage, whereas among the 13 new Member States, 5 countries rank below Lithuania. Thus, the role of the unemployment insurance system and ALMPs in protecting employees from the consequences of unemployment is relatively limited.

2.2. Restrictions on dismissals of regular employees

Country by country comparisons of employment and dismissal restrictions are based on employment protection legislation (EPL) indexes published by the OECD. These are calculated based on answers to questions about the regulation of employment and dismissal. The majority of the questions are qualitative, e.g., ‘what are valid cases for dismissing an employee’. Answers are grouped according to the strictness of restrictions, e.g., if the redundancy of a position or an employee’s abilities creates a sufficient legal basis for dismissal, the dismissal of employees is considered to be flexible; if the employer is required to take the employee’s age or tenure into consideration, limitations are considered to be less flexible; if regulations require employers to retrain the employee or transfer them to another position before dismissal, then limitations are considered to be even less flexible, etc. There are two principal EPL indexes: regular employment and temporary employment (the latter consists of employment based on fixed term contracts and employment through temporary work agencies). Different EPL areas are also assessed, e.g., dismissal procedures, length of notice periods, severance pay, fixed term contracts, etc.

Lithuania’s EPL index for regular employment falls close to the average for old EU Member States (see Chart C). In about one half of these countries, restrictions are less strict than in Lithuania. Compared to the average EPL index for new Member States, Lithuania’s EPL index is slightly higher (regulations are somewhat stricter). In five out of eight new EU Member States¹⁰, regulations are less strict than in Lithuania. Regulations are significantly less strict in Estonia, but noticeably stricter in Latvia.

The EPL index assesses three areas: how difficult it is to fire an employee (legal basis for dismissal, re-employment and compensation in cases of unfair dismissal, etc.), how inconvenient dismissal procedures are (complexity, duration) and the length of the notice period as well as severance pay. These areas explain why Lithuania’s EPL index differs from the group averages mentioned previously.

Even though Lithuania’s EPL index does not differ significantly from the average among old EU Member States, it should be noted that in Lithuania the length of notice periods is much longer and severance payouts are much more generous. The most pronounced differences can be found in the notice periods and severance pay offered to employees with shorter tenure. However, this is offset in the index calculations by much more simple and quick dismissal procedures (see Chart D). For example, when dismissing an employee, the employer is not required to inform or receive the approval of any third parties, e.g., work councils, trade unions, government institutions, etc. These very factors also explain the differences between Lithuania’s EPL index and the average index value among new EU members. However, firing an employee is more difficult than in newcomer States because limitations exist for the dismissal of certain groups, e.g., the disabled, employees raising children, etc. Moreover, dismissal is only allowed if the employee cannot be transferred to another position. In most new Member States, the redundancy of a job position or an employee’s professional skills serve as sufficient legal grounds for the dismissal of an employee.

Chart C. EPL index for regular employment for 2013–2014.

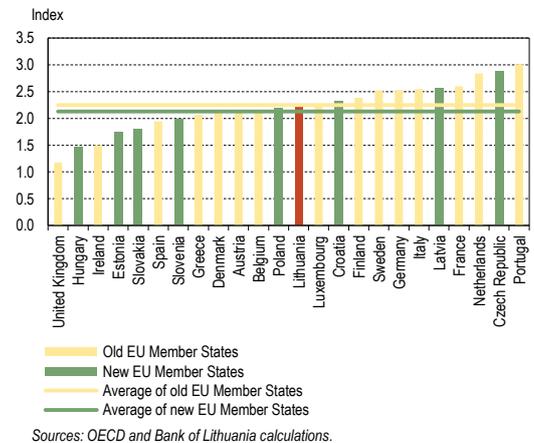


Chart D. Factors affecting deviations of Lithuania’s EPL index for regular employment from the EPL indexes of new and old EU Member States for 2013–2014.

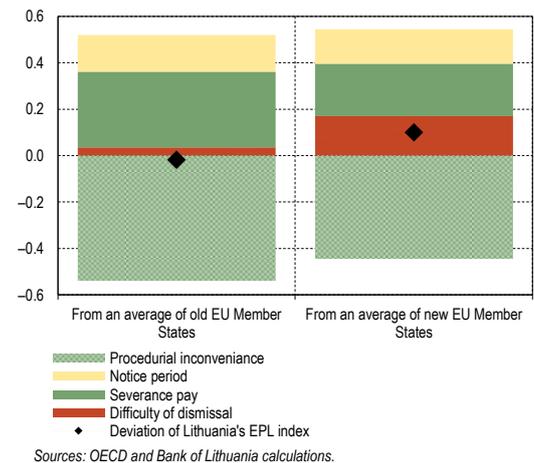
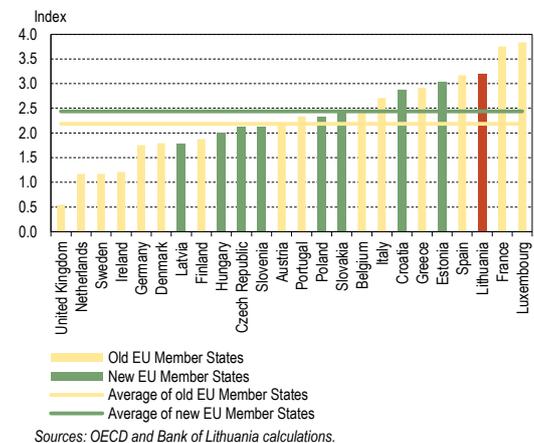


Chart E. EPL index for temporary employment for 2013–2014.



¹⁰ The index is not calculated for Bulgaria, Cyprus, Malta and Romania.

It is worth noting that these assessments are based on the assumption that the legal regulation governing the dismissal of employees is actually enforced. However, information presented by the media and various international institutions points to the reality that in Lithuania these provisions are quite frequently not complied with. For example, in 2010, when the labour market was in poor shape and unemployment reached 17.8 per cent, only 2.1 per cent of all dismissals were initiated by the employer and at no fault of the employee (in such cases the employee should receive severance pay). In later years, this percentage decreased even further and only reached 0.6–0.9 per cent (Verslo Žinios, 2015). It is doubtful that only such a small percentage of employment contracts were terminated at the initiative of the employer. These numbers most likely reflect the often-mentioned practice when dismissed employees leave their job ‘voluntarily’ without receiving any severance pay. This failure to comply fully with the regulations governing dismissal has also been noted by international institutions (OECD, 2016 and EC, 2015b). Thus, the assumption can be made that in Lithuania the dismissal of an employee is not always accompanied by the requisite severance pay. This reduces Lithuania’s EPL index value from 2.23 to approximately 1.73. However, comparing this hypothetically reduced index value with the index values of other countries is not necessarily justified. The level of development in the majority of new EU States is comparable to Lithuania’s, thus some of these countries might be experiencing a similar lack of compliance in terms of dismissal regulation. Of course, this aspect should pose less of an issue in the old EU Member States; therefore, using the recalculated value for comparison in this context would be meaningful. In this case, only two countries – UK and Ireland – would have a lower EPL index value than Lithuania.

It is possible that the dismissal restrictions that are actually applied in Lithuania, as opposed to those established in legislation, are relatively flexible and comparable to the Anglo-Saxon model. A similar conclusion was also made by the IMF (2014). As a matter of fact, different regulations apply to different enterprises: for those who comply with all the provisions regulating dismissal, regulations are moderately strict, for those who do not – regulations are flexible.

2.3. Restrictions on using fixed term employment contracts

Lithuania’s EPL index value for temporary employment is much higher than the average index values of both the new and old EU Member States (see Chart E). In all EU countries, except for France and Luxembourg, restrictions are more flexible than in Lithuania. This pronounced strictness is the result of especially restricted hiring based on fixed term contracts. Limitations on employment through temporary work agencies are more flexible in about half of both new and old EU Member States.

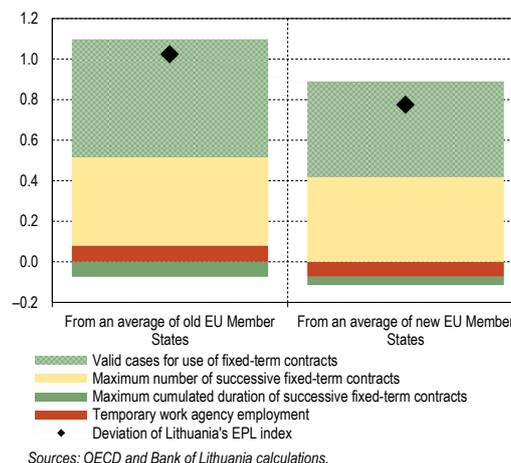
Restrictions on employment based on fixed term contracts are assessed based on three criteria: valid cases for the use of fixed term contracts, maximum number of successive fixed term contracts, and their maximum duration (including successive contracts). These criteria explain why Lithuania’s EPL index value is much higher than the average index value of new or old EU Member States (see Chart F).

The most significant factor in this case is that Lithuanian regulations do not allow employers to enter into fixed term contracts for work that is permanent in nature, except for cases in which a new job position is created (since August of 2015, such exceptions are no longer applied, but this was not taken into account because calculations of the index were based on legislation valid on 1 January 2014). The majority of EU countries either allow such contracts in a greater number of cases, e.g., when an individual is employed for the first time, is a participant of ALMPs, etc., or does not limit such contracts at all. Another reason behind this pronounced difference is that regulations prohibit the extension of fixed term contracts. However, this raises some doubt whether such prohibition exists. In Lithuania, this type of contract can often be extended an unlimited number of times; however, its duration, including these extensions, cannot exceed 5 years.

In light of these circumstances, Lithuania’s EPL index might not completely accurately reflect the strictness of current regulations. It is worth recalculating its value based on two assumptions in relation to fixed term contracts: that fixed term contracts cannot be used for work of a permanent nature, even if a new job position is created; and that such contracts can be extended an unlimited number of times. However, the recalculated value of the index (which falls from 3.21 to 2.96) is still much greater than the average index values of new and old EU States. The correction reveals that employment protection is stricter than in Lithuania not only in France and Luxembourg, but also Spain and Estonia.

Overall in Lithuania, regulations restricting the use of fixed term employment contracts are some of the strictest in the EU. There is no basis for the belief that actually existing restrictions differ from those established in the law. Such contracts are actually used rarely: in 2015, only 2.1 per cent of employees were employed based on fixed term contracts in Lithuania; in the EU, a smaller percentage was only recorded in Romania.

Chart F. Factors contributing to the deviation of Lithuania’s EPL index for temporary employment from the average index value for new and old EU Member States in 2013–2014.



3. What will the new social model change?

The new Labour Code¹¹ will restrict less both hiring based on fixed term contracts and dismissal. It will no longer prohibit the use of fixed term contracts for work of a permanent nature. However, such contracts will not be allowed to make up more than 20 per cent of an employer's employment contracts. The maximum duration of such a contract will also drop from 5 to 2 years. These limitations should help avoid the overly frequent use of fixed term contracts. The new code establishes five new types of employment contract: employment under several employers, job sharing, temporary work, project-based work and apprenticeship. The latter two are quite similar to fixed term contracts, so they will also give the employer more possibilities to hire employees for a set period of time.

Regulation of the dismissal of employees will also be more flexible. The code defines more cases for the legal dismissal of employees, and the costs of dismissing an employee are noticeably reduced. If an employee is dismissed by the initiative of the employer and with no fault of the employee, the employer is required to provide severance pay of 0.5 or 2 months average wage. The previous version of the Labour Code required severance pay of 1 to 6 months average wage. The new code introduces the possibility for the employer to fire an employee on any non-discriminatory grounds¹², i.e., at the employer's discretion. In such a case, the employee must receive three days' notice and be paid severance pay of 6 months average wage.

Finally, the new social model also provides for greater unemployment benefits and easier access to them. The model also entrenches possibilities for increasing ALMP funding; however, whether this funding will be increased remains to be seen.

Conclusion

In the social model applied up to this point, the role of unemployment benefits and ALMPs was insignificant within the framework set up to protect individuals from the consequences of unemployment. A much greater role was played in this respect by restrictions on dismissal and hiring based on fixed term contracts. They were set up to discourage employers from firing greater numbers of employees, and very generous severance payouts were meant to replace an employee's lost income. A substantial portion of the burden of protecting employees fell onto the employers. However, such a social model did little to protect employees. As mentioned before, the practice of dismissed employees leaving the job 'voluntarily' without receiving any severance pay was quite a frequent occurrence. However, not all employers could enjoy this practice – those who complied with all the provisions of the Labour Code that regulating dismissal, paid out some of the most generous severance packages in the EU. The new social model will attempt to place more responsibility for the protection of employees on the unemployment insurance system as well as ALMPs and decrease the significance of regulations governing dismissal and employment.

Sources

Blanchard O, Jaumotte F, Loungani P. 2013. Labor Market Policies and IMF Advice in Advanced Economies During the Great Recession. <https://www.imf.org/external/pubs/ft/sdn/2013/sdn1302.pdf>

European Commission. 2015a. Unemployment Benefits With a Focus on Making Work Pay. http://ec.europa.eu/europe2020/pdf/themes/2015/unemployment_benefits_20151126.pdf

European Commission. 2015b. Country Report: Lithuania 2015, Commission Staff Working Document. http://ec.europa.eu/europe2020/pdf/csr2015/cr2015_lithuania_en.pdf

IMF. 2014. Baltic Cluster Report. <https://www.imf.org/external/pubs/ft/scr/2014/cr14117.pdf>

Organisation for Economic Co-operation and Development. 2016. OECD Economic Surveys LITHUANIA. <https://www.oecd.org/economy/surveys/Lithuania-2016-overview.pdf>

Verslo Žinios. 2015. Per metus iš darbo atleista tiek, kiek gyvena Rietave. <http://vz.lt/vadyba/personalo-valdymas/2015/10/31/per-metus-is-darbo-atleista-tiek-kiek-gyvena-rietave>

¹¹ Entered into force on 14 September 2016; its amendments – on 3 November 2016.

¹² Discriminatory grounds: sex, race, etc.

ANNEX 3. Reform of the Lithuanian social model: amendments to social security and the tax wedge

Tax revenues from taxation of labour constitute a significant share of government revenue in many EU Member States. In addition to providing government revenue, labour taxes influence the demand and supply of the labour factor. First, the labour tax rate influences the decision of households on whether to participate in the labour market and how many hours to work. Also, taxation on labour is an important factor taken into account when deciding on the desired proportion of income from other sources, e.g., from the shadow economy. From the perspective of labour demand, labour taxes influence the decisions of companies to hire employees. Therefore, the Annex studies direct labour taxation in Lithuania and the EU countries and assesses the impact of tax changes, related to the social model and provisions of the draft budget in 2017.

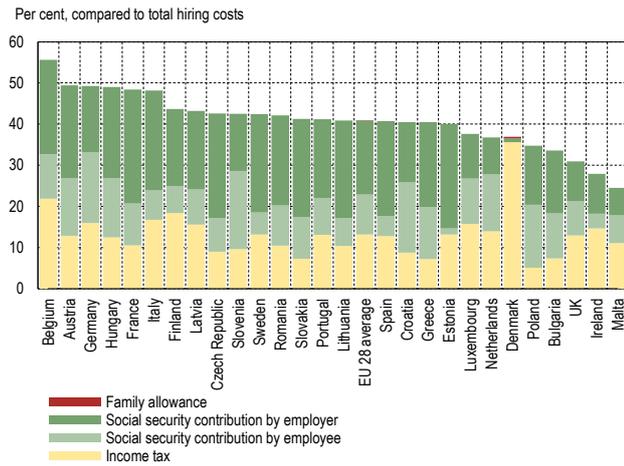
In monitoring the European economies that are struggling to recover after the economic slowdown, over the past few years it has often been recommended to EU Member States to reduce labour taxation, especially for low income earners (Eurogroup 2014). The main reason behind this proposal is the belief that lower taxation on labour can make the labour market more flexible. Lower taxation on labour also reduces the tax wedge. The tax wedge is the difference between the employer's total costs of hiring the employee and the employee's after-tax wage. The average tax on labour could be reduced by widening the tax wedge interval, as the lower limit shows the tax wedge of households earning the lowest income and those with children, while the upper limit reflects the tax wedge of those households that are usually composed of one person and receive a much higher-than-average income. The tax wedge has a particularly significant impact on low income earners. Lower labour taxes could increase their income and incentives to work and thus have a positive influence on the overall state employment level due to the higher elasticity of labour supply with respect to income.

The above-mentioned and other effects of the tax wedge are widely discussed in economic literature. It provides evidence of the growing labour factor demand elasticity, predominantly due to increasing economic integration, growing mobility of companies and the resulting higher sensitivity of employers to labour costs (Lichtner et al., 2014). It is argued that for countries where the employers are subject to a heavy tax burden there is a risk of capital leakage and lower economic activity in the long run. The low marginal tax rate on labour in most cases has a positive effect on the labour supply of lower-income households due to higher elasticity of such households with regard to income (Saez, 2001). Tax wedge reduction reduces unemployment, because the empirical literature provides evidence that labour taxes strongly correlate with the unemployment rate. For example, it is argued that the unemployment rate in industrialised European countries at the end of the 20th c. was mainly the result of a significant increase in labour taxes and ultimately a higher tax wedge. Similar results are presented in a more recent OECD study, which states that a high tax wedge is one of the most important factors in increasing unemployment, and its reduction by 10 p.p. would allow for a nearly 3 p.p. decrease in unemployment rate in the analysed OECD countries (Bassanini and Duval, 2006).

The effects of the tax wage are indirectly analysed in empirical studies dealing with the impact of fiscal devaluation on the economy. Fiscal devaluation is a policy instrument often recommended by international institutions for countries suffering from competitiveness problems. A classic example is the reduction of social security contributions and compensating the negative effects of this decision on the budget by additional income from increased value-added tax. Such exchange of taxes reduces the tax wedge and its effect on the economy is very similar to that of the depreciation of the nominal exchange rate, if the flexibility of wages is low and markets are competitive enough (Farhi et al., 2011). The findings of these scientific articles generally show a positive effect of fiscal devaluation on short-term and long-term growth of economic activity. As summarised in the European Commission study, most of the empirical study results support the contention that the labour tax reduction and/or exchange by taxation on consumption increases the GDP growth in the long term; however, the magnitude of this effect is also dependent on other factors (European Commission, 2011).

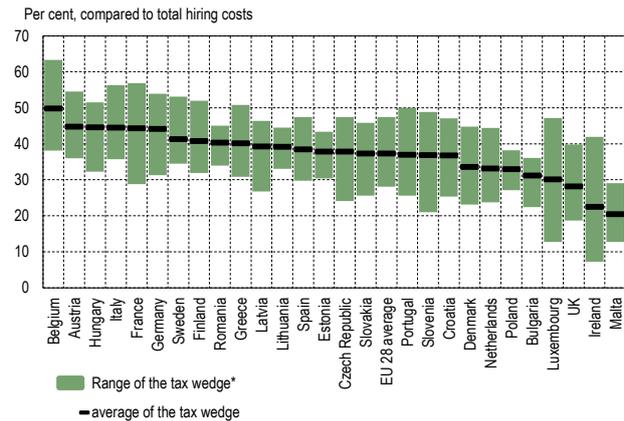
Chart A presents the values and structure of tax wedge in EU Member States in 2014. The tax wedge in Lithuania amounted to around 40 per cent and was close to the EU average. Compared to neighbouring countries, the tax wedge in Estonia and Poland was lower than in Lithuania, while in Latvia it was a little higher. The analysis of the tax wedge structure shows that in Lithuania and Estonia, social security contributions paid by the employer account for the largest share of the tax wedge. However, in Estonia, the remaining share of the tax wedge is comprised of the income tax, while in Lithuania the shares of social security contributions paid by the employee and the income tax are very similar. In Poland, the share of income tax in the tax wedge is the lowest among all EU countries whose data are available, and the major part is comprised of social security contributions paid by the employee. However, tax wedge structure could be less important than its level, if some aspects potentially relevant for assessment of labour taxation in terms of transparency, simplicity and influence of the shadow economy are not taken into account.

Chart A. Tax wedge and its structure in EU Member States in 2014 (average wage earner)



Sources: European Commission and Bank of Lithuania calculations.

Chart B. Range of the tax wedge in EU Member States in 2014



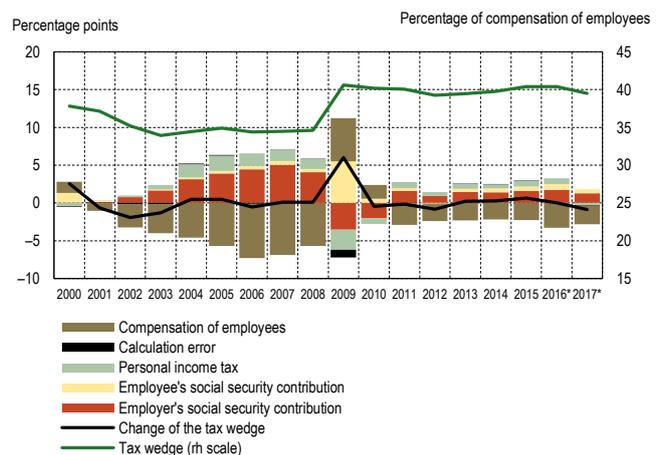
Sources: European Commission and Bank of Lithuania calculations.

* The range of the tax wedge is calculated using EC data on tax wedges by households with respect to household structure (single, one person with 2 children, a couple, a couple with two children) and relative level of income (33%, 50%, 67%, 100%, 125% or 167% of the average wage).

The size of the tax wedge is affected by a variety of tax exemptions. For example, in Lithuania, the Law on Income Tax of Individuals (LRS 2002) envisages that for individuals whose annual income before taxes is lower than EUR 11,259 (or EUR 938 per month) non-taxable income (NTI) is applied when calculating the income tax due. The maximum amount of NTI is EUR 2,400 (or EUR 200 per month). For individuals who are raising children under 18, additional NTI of EUR 120 is applied for each child. Therefore, a more accurate distribution of the tax wedge in the EU Member States is presented in Chart B, which takes into account the family situation of households and relative wage in comparison to average wage in the country. In Lithuania the difference of the tax wedge for households consisting of one individual and two individuals with two children is not very large, i.e., the tax wedge range is small enough. A smaller range was registered only in Poland and Romania, while in Estonia and Latvia it is considerably larger. A small wedge range indicates that the share of taxes in total hiring costs and the marginal rate of labour tax in Lithuania barely depends on the taxpayer's relative earnings and family situation. On the one hand, this is particularly important for low-income households when deciding whether to participate in the labour market and how much to work. On the other hand, a narrow wedge interval shows a rather stable marginal rate of labour tax and the low-progressive (proportional) labour taxation, which does not reduce incentives to seek higher income for higher-income households already participating in the labour market.

The development of the tax wedge in Lithuania may be divided into three major periods (Chart C). The first one covers the period from 2000 to 2003, during which the tax wedge decreased from around 38 per cent to 34 per cent. The main reason for this decrease was rapid acceleration of wage growth after the Russian financial crisis; however, the annual growth rate of employer social security contributions and revenue from personal income tax was much slower. Such development, among other factors, could have been a result of the increase in shadow economy during the economic recession. This statement is supported by Schneider's (2002) estimates of shadow economy. These estimates show that the average size of the shadow economy in 2000–2001 was higher, when compared to the period of 1990–1993. The second period covers 2004–2008, during which the tax wedge remained essentially stable and amounted to 35 per cent. Other macroeconomic data shows that during this period, Lithuania's GDP was growing very rapidly, followed by a significant increase in government revenues, although there were no essential changes in tax rates. Tax rates and the list of tax payers were substantially revised in 2009: individuals receiving income from sports activities, performing activities, or under copyright contracts were included in social security. In addition, in 2009, employee social security contributions were separated from personal income tax (the personal income tax rate of 24% was divided into 15% personal income tax and 9% social security contribution). These were the main reasons behind the increase in collected social security contributions in 2009, despite the drop by one sixth in compensation of employees during the economic downturn. This resulted in a rise of the tax wedge to around 40 per cent in 2009, which remained essentially unchanged until now.

Chart C. Tax wedge development in Lithuania in 2000–2017.



Sources: Statistics Lithuania, Ministry of Finance and Bank of Lithuania calculations.

* forecast calculated by the Bank of Lithuania based on the Ministry of Finance macroeconomic forecasts and other information.

In the nearest years, the size of the tax wedge will be significantly affected by changes in labour income taxation, which are already approved or are planned to be approved by the Seimas of the Republic of Lithuania. The most important changes include:

- in 2017, the employer social security contribution rate will be decreased by 0.5 p.p. for budgetary institutions and the Bank of Lithuania: in September 2016 the Parliament adopted a Law (LRS 2016a), which established a long-term employment benefit fund. The Law stipulates that employers, with the exception of budgetary institutions and the Bank of Lithuania, pay contributions of 0.5 per cent into the long-term employment benefit fund;
- the draft State Social Insurance Fund Budget for 2017 (LRS 2016b) proposes to reduce the general pension, sickness and maternity, and unemployment insurance contribution rate to 27.3 per cent (compared to 27.8% in 2016) by changing the rates for individual types of social insurance:
 - old-age pension social insurance rate would be reduced from 23.3 p.p. to 22.3 p.p.;
 - unemployment insurance rate would be increased from 1.1 p.p. to 1.6 p.p.;
 - the shares of maternity and sickness social insurance and compulsory health insurance in the general rate would be 3.4 p.p. and 3.0 p.p. respectively, i.e., they would not change in 2017;
- NTI will increase in 2017: in December 2016 the Parliament agreed on changes in the Law on Personal Income Tax (LRS 2016c) and increased the general NTI from EUR 200 to 310 and additional NTI for children from EUR 120 to 200 is proposed along with a proportionate increase of individual NTIs for the disabled depending on the level of disability.

The calculations indicate that the proposed amendments would reduce the tax wedge in 2017. However, as it is evident from Chart C, which presents the projected development of the tax wedge, this decrease will be small and will amount to around 1 p.p.

In summary, it can be stated that the size of the tax wage in Lithuania currently amounts to around 40 per cent and is very close to the EU average. However, it will decrease slightly in 2017 due to the already-approved or planned amendments of labour income taxation by the Seimas of the Republic of Lithuania. However, according to the results of empirical research, greater reduction of the tax wage could be beneficial to the country's economy in several aspects. First, a smaller tax wedge could reduce the risk of capital leakage in the context of increasing mobility of companies and growing economic integration among countries. Second, expanding the range of the tax wedge could potentially reduce the marginal labour tax rate and contribute to the greater well-being of lower income households. The range of the tax wedge in Lithuania is one of the smallest compared to other EU Member States (smaller only in Poland and Romania). Third, quicker reduction of the tax wedge and labour taxation would allow for faster growth of economic activity in the long run.

Literature

Bassanini A, Duval R. 2006. The determinants of unemployment across OECD countries: reassessing the role of policies and institutions. Organization for Economic Cooperation and Development, Economic Studies No. 42.

Eurogroup 2014: Eurogroup Statement "Structural Reform Agenda – Thematic Discussions on Growth and Jobs: Common Principles for Reforms Reducing the Tax Burden on Labour": http://www.consilium.europa.eu/press-releases-pdf/2015/9/40802202295_lt.pdf.

European Commission. 2011. Tax Reforms in EU Member States: Tax Policy Challenges for Economic Growth and Fiscal Sustainability. Institutional Paper No. 008.

Farhi E, Gopinath G, Itskhoki O. 2011. Fiscal Devaluations. National Bureau of Economic Research, Working Paper No. 17662.

Lichter A, Peichl A, Siegloch S. 2014: The Own-Wage Elasticity of Labor Demand: A Meta-Regression Analysis. Discussion Paper No. 7958, IZA.

LRS 2002: Law on Income Tax of Individuals of the Republic of Lithuania, 2 July 2002, No IX-1007, consolidated version from 01/01/2016 to 31/12/2016.

LRS 2016a: The Law on Guarantees for Employees in the Event of Employer Insolvency and Long-Term Employment Benefits of the Republic of Lithuania, 14 September 2016, No XII-2604.

LRS 2016b: Draft Law on the Approval of Annual Indicators of Draft Budget of the State Social Insurance Fund of the Republic of Lithuania for 2017, 17 October 2016, No XIIP-4798, internet access: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAP/034794f0943111e68adcda1bb2f432d1?positionInSearchResults=0&searchModelUUID=f3df540f-dce6-4c9d-ac0d-da13d8cd7aee>.

LRS 2016c: The Law amending the articles 20 and 38 of the Law on Income Tax of Individuals of the Republic of Lithuania No IX-1007, 13 December 2016, No XIIP-4794(2).

Saez E. 2001. Using elasticities to derive optimal income tax rates. *Review of Economic Studies*. 68: 205–229.

Schneider F. 2002. The Size and Development of the Shadow Economies of 22 Transition and 21 OECD Countries. Discussion Paper No. 514, IZA.

ANNEX 4. Overview of Lithuania's export market shares for goods

Introduction

The Annex presents an analysis of how Lithuania's export market has developed from 2000 to the end of 2015 by region and by product group. Such an analysis contributes to the discussion on Lithuania's economic competitiveness, which has been raising increasingly more questions as of late. The analysis of export market shares is one of the many methods that can be used to explore these questions.

1. Lithuania's export market share's definition and data

Lithuania's export market share for goods (hereinafter 'Lithuania's market share') is defined as the portion that Lithuania's exported goods make up in a given market. Two indicators are used to assess Lithuania's market share: 1) the value of products imported from Lithuania within a given country or globally compared to the value of all goods imported into the said country or globally; 2) the value of exported goods originating from Lithuania and imported into a given country or globally compared to the value of all goods imported into said country or globally. Both indicators involve the following features:

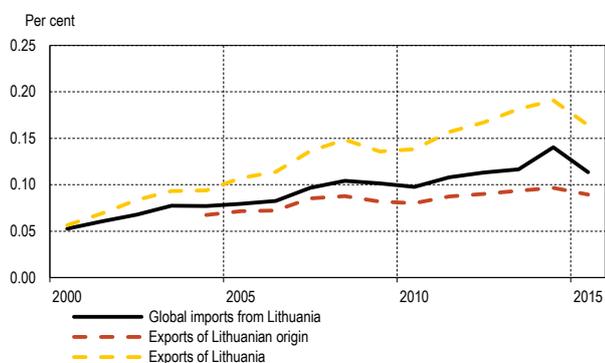
- *They only address the value of exported or imported goods.* Only data regarding the trade of goods is used because there is more of it and it is more comprehensive. The value of Lithuania's exported goods is greater than that of its exported services.
- *Mineral products are not included unless specified otherwise.* This product group was one of Lithuania's most important exports, but its export value is prone to significant fluctuation due to changing global oil prices. The exclusion of mineral products produces much more consistent market share data that can be readily analysed. The data used is classified according to the Standard International Trade Classification (SITC-3), thus mineral products fall into group 33, *Petroleum, petroleum products and related materials*.
- *The numerator of the first indicator represents import data.* Import data of a specific country is more readily available than aggregated data on the exports of all countries into a single country, thus the first market share indicator is the main indicator and, unless specified otherwise, will be used to support the data presented here. When non-aggregated data is used, there is less of a need to focus on comparing the different methodologies implemented in each case. However, there will be some methodological differences when aggregating import data from differing markets.
- *The numerator of the second indicator represents export data.* This enables splitting Lithuania's export market share into exports of Lithuanian origin and Lithuania's re-exports. The distinction of exported goods of Lithuanian origin allows us to assess the competitiveness of a country's exports and structural export indicators.
- *The denominators of both indicators represent global import data.* They are used more widely than export data, they are easier to access and global import data do not demonstrate very different levels of fluctuation from global exports.
- *Import data is acquired from the UN Comtrade database.* They correspond to data produced by national institutions, except for the fact that import values are calculated in US dollars. In order to make the data comparable to data presented by Statistics Lithuania, the values calculated by UN Comtrade have been converted to euro at the exchange rates set by Eurostat. Imports are grouped by exporting country, importing country and by imported goods.
- *Import data is aggregated by country and good.* In order to be able to compare aggregated UN Comtrade data, the analysis will include only those countries that declared import data for 2010 and 2015. There were 86 such countries, and exports to these countries made up 92.1 per cent of Lithuania's exports in 2015. Goods were classified into 6 product groups based on how they were produced¹³.
- *Export data provided by Statistics Lithuania.* They cover all of the world's exports and are grouped by country, but not by goods.

There are substantial differences between indicators for Lithuania's market share that have been calculated using different methods. For example, based on import data, the market share for Lithuania in the world (Lithuania's global market share) was calculated as 0.11 per cent, but based on the relationship between Lithuanian exports and global imports, calculations produced a 0.16 per cent market share for 2015 (the export market share for products of Lithuanian origin – 0.09%).

¹³ For more details on how goods are classified, see Bank of Lithuania (2015).

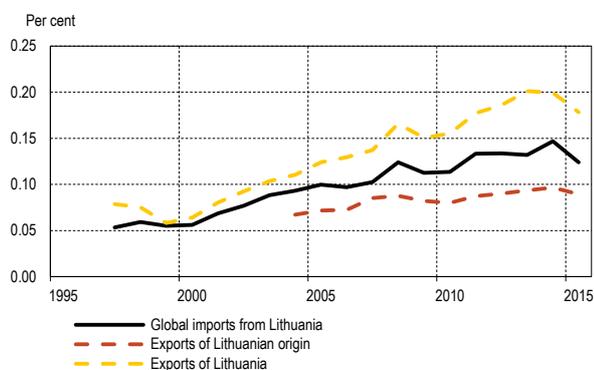
These differences can in part be explained by the incompatibility in data presentation methodologies. Import and export statistics are based on different transport costs of goods (Statistics Lithuania, 2014). In addition to this, some countries do not include Lithuanian re-export data in their data for Lithuanian imports. Charts A and B show that in 2000, none of the indicators differed significantly from the rest; however, later, as re-exports start to grow, their values begin to change at different rates.

Chart A. Lithuania's global market share for goods



Sources: UN Comtrade, Statistics Lithuania, and Bank of Lithuania calculations.
Note: calculated based on data from UN Comtrade, data on export of goods of Lithuanian origin from UN Comtrade and Statistics Lithuania

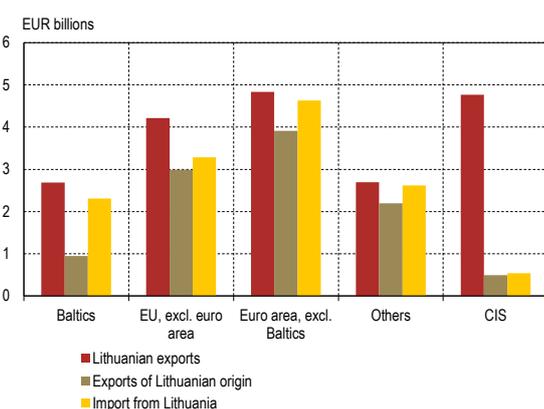
Chart B. Lithuania's global market share for goods, including mineral products



Sources: UN Comtrade, Statistics Lithuania, Bank of Lithuania calculations.
Note: calculated based on data from UN Comtrade, data on export of goods of Lithuanian origin from UN Comtrade and Statistics Lithuania

Differences between market share indicators are most heavily influenced by inconsistencies between import data from CIS countries, especially Russia, and Lithuanian export data. Chart C presents a comparison of foreign trade data published by Statistics Lithuania and Lithuania's import data sourced from UN Comtrade. This comparison shows that the value of imports from Lithuania into EU countries and the value of exports from Lithuania into the EU is similar, whereas the value of imports into the CIS region is much smaller than Lithuania's exports into CIS countries; the import indicator is much closer in value to the export indicator for goods of Lithuanian origin. The similarity becomes even more apparent when comparing exports of goods of Lithuanian origin into Russia or Russia's imports from Lithuania (see Chart D). Data on trade with other CIS countries presents a similar contrast.¹⁴

Chart C. Lithuania's exports and imports from Lithuania for 2015



Sources: UN Comtrade, Statistics Lithuania and Bank of Lithuania calculations.

Chart D. Exports of Lithuanian origin to Russia and Russian imports from Lithuania



Sources: UN Comtrade, Statistics Lithuania and Bank of Lithuania calculations.

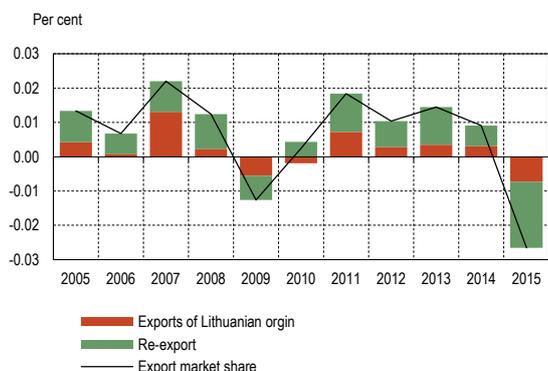
2. Lithuania's global export market share for goods

The indicator based on only import data reveals that Lithuania's market share in 2015 reached 0.11 per cent. This is a greater share than Latvia's and Estonia's market shares (0.06 and 0.09% respectively) or the percentage of the global population (0.06%) and GDP (0.07%) that Lithuania represents. Even though indicators calculated based on import and export data differ, they demonstrate similar growth patterns: during the reference period, Lithuania's global market share

¹⁴ Data published by the IMF shows that during certain periods, CIS imports from Lithuania come closer to the value of Lithuania's total exports and not of exported goods of Lithuanian origin. This is because the IMF models data based on trade partner (in this case, Lithuania's) exports, which differ significantly from exports of Lithuanian origin, when it fails to receive data from a given country. Thus, the data from a number of CIS countries (e.g., Uzbekistan, Tajikistan, Moldova and Kyrgyzstan) sometimes reflects Lithuania's total exports, while other times it reflects only exports of Lithuanian origin.

increased. Both indicators show that in 2000, Lithuania's market share was approximately 0.05 per cent, and this number more or less doubled by the end of 2015. Similar conclusions were reached in previous versions of the Lithuanian Economic Review (Bank of Lithuania 2013a, b) and scientific literature (e.g., Stonys, Grebliauskas 2013). It is worth pointing out that Lithuania lost a portion of its market share in 1999, during the Russian crisis, and in 2009, during the global financial crisis. Over the period of 2014–2015, Lithuania's market share grew less rapidly and even decreased during the deteriorating situation in the CIS.

Chart E. Growth of Lithuania's global export market share for goods (second indicator)



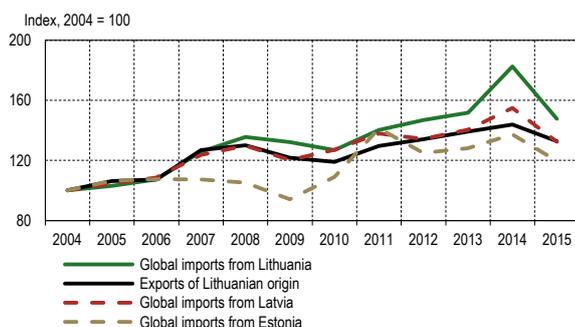
Sources: UN Comtrade, Statistics Lithuania and Bank of Lithuania calculations.

Lithuanian carriers became more intensely involved in the carriage of products between Western countries. This improved their situation, but did not result in the growth of re-exports.

The other 30 per cent of the growth in the market share can be explained by exports of Lithuanian origin. These exports fluctuated for many reasons, but this overview will only touch upon changes in investment, competitiveness and the rate of the euro.

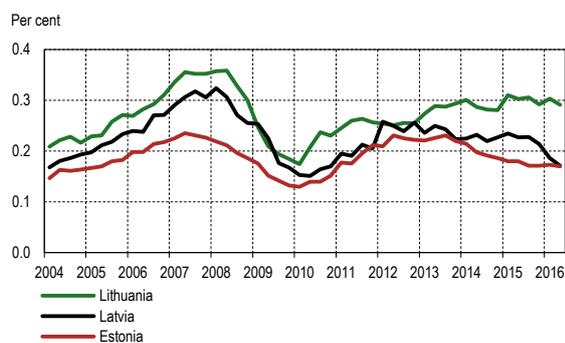
In the long term, the market share for goods of Lithuanian origin changes due to investment and the development of production capacity (see Chart G). From 2004 to the financial crisis, investment in Lithuania and the other Baltic States grew at a greater rate than in most countries (e.g., in the EU), and this allowed Baltic businesses to modernise and expand their market share significantly. Investment in manufacturing was especially important for the growth of Lithuanian exports because exported products from this sector make up 75 per cent of exported goods of Lithuanian origin. Significant investment was attracted by the furniture and chemical industries, the export value of which was among the greatest. However, the investment time line can also be used to explain a slowing in the development of the country's exports. During the financial crisis, investment in the Baltic States dropped, and this drop was relatively more dramatic than in other EU countries. Even though the immediate effect of this produced only a relatively slight decrease in market shares, their growth slowed in the short term. After the financial crisis, investment in the Baltic States picked up again and grew faster than in the EU. This created the basis for further growth of the country's market share. Recent years, however, have shown that the development of investment is not exceptionally favourable in the Baltic States: In Latvia, the share of EU investment has decreased since 2012, in Estonia since 2013, and has remained relatively stable in Lithuania since 2014.

Chart F. Growth of the Baltic States' global export market shares for goods in the



Sources: UN Comtrade, Statistics Lithuania and Bank of Lithuania calculations.
Note: calculated based on data from UN Comtrade, data on export of goods of Lithuanian origin from UN Comtrade and Statistics Lithuania

Chart G. Baltic investment (gross fixed capital formation) as a share of EU investment, excluding residential buildings



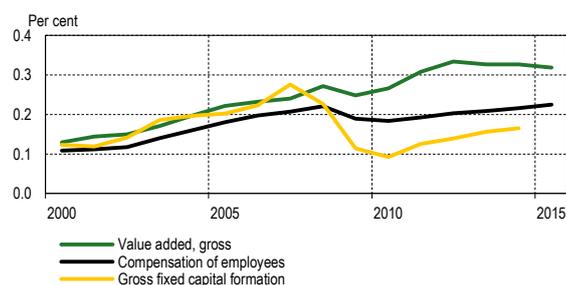
Sources: Eurostat and Bank of Lithuania calculations.
Note: nominal indicators; data seasonally adjusted.

The export of goods of Lithuanian origin can also be affected by the competitiveness of Lithuanian export. One way to determine this is to conduct an analysis of the fluctuations and level of added value and costs, which allows indirect assessment of competitiveness. It is likely that Lithuania's competitiveness would decrease if costs in Lithuania grew more than in other countries (e.g., the cost of employment), and the added value generated failed to reach the growth demonstrated by other countries. It is also likely that Lithuania will be able to maintain a competitive edge if it manages to create greater added value at a lower cost than the EU. Available data can be used to identify the added value generated by certain types of economic activity in Lithuania, employment costs and investment, compare this information with corresponding EU indicators and determine structural parts. Such shares of Lithuania's manufacturing and agricultural sectors were calculated based on added value and employment cost data from 28 EU countries as well as investment data from 20 EU countries, and are presented in charts H and I. This does not include investment data from Belgium, Spain, the United Kingdom, Cyprus, Croatia, Portugal, Romania and Slovenia. These countries make up 25 per cent of the EU's gross fixed capital formation; therefore, Lithuania's market share of the manufacturing and agricultural sector is decreased by 25 per cent.

The indicators calculated show that Lithuania's manufacturing industry was competitive until the economic recession of 2008–2009 and after, but its competitiveness has been waning since 2013. Chart H reveals that more added value was produced by the manufacturing industry at relatively lower costs in Lithuania than in the rest of the EU, and this increases the likelihood of Lithuania being competitive. Until the recession, indicators for the said manufacturing industry changed at a rather steady rate: Lithuania's share of added value generated in the EU grew, but so did its share of employment costs. Because added value and employment costs grew at a proportionate rate for quite a long time, the assumption can be made that Lithuania's manufacturing industry was competitive even though its competitiveness did not change over time. For a while, after the economic recession, added value grew at a relatively fast rate compared to the EU and employment costs decreased. They decreased because comparatively more employees were dismissed and wages also decreased. This demonstrates that the competitiveness of Lithuania's manufacturing industry has improved in that time. As the economy continued to grow, more employees were being hired and wages began to increase, resulting in a more rapid increase in employment costs compared to the rest of the EU. At the same time, compared to the relevant EU indicator, the added value generated by Lithuania's manufacturing industry grew at a rapid rate after the crisis, but ground to a halt in 2013. For this reason, the competitiveness of the manufacturing sector decreased; however, this does not mean that it stopped being competitive altogether.

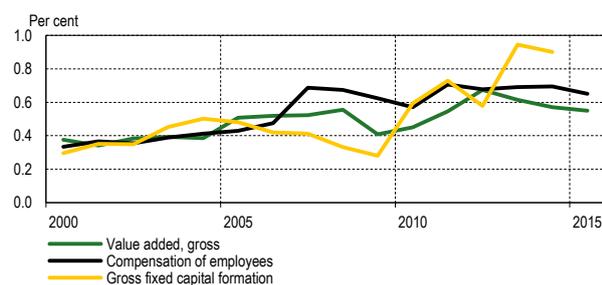
The fact that from 2013, the added value share of Lithuania's manufacturing industry in the EU stopped growing was a significant development of the economy. For a large part, this was caused by external factors: in 2013, petroleum prices began to drop, resulting in the decreased added value of refined petroleum products.¹⁵ In 2014–2015, this was further exacerbated by restrictions on imports applied by Russia and the economic crisis in the CIS region, which reduced the demand for imports of Lithuania's manufactured goods to the CIS countries. However, internal factors were also at play: emerging shortages of employees and decreasing investment. During the economic recession, investment in manufacturing dropped by more in Lithuania than in the rest of the EU. Lithuania's share of investment in the EU is still substantially lower than before the crisis.

Chart H. Lithuanian manufacturing indicators as shares of EU manufacturing indicators



Sources: Eurostat and Bank of Lithuania calculations.
Note: nominal indicators; data seasonally adjusted.

Chart I. Lithuanian agricultural indicators as shares of EU agricultural indicators

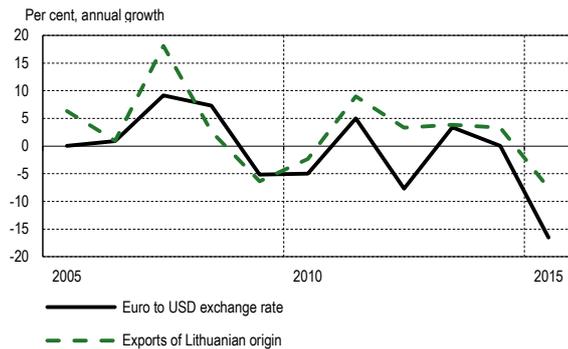


Sources: Eurostat and Bank of Lithuania calculations.
Note: nominal indicators; data seasonally adjusted.

Uncompetitiveness poses a danger for the growth of Lithuania's market share in the agricultural sector as well. For more than a year now, the cost of employing agricultural workers has remained relatively stable in Lithuania; however, the added value they generate is comparatively lower than that of their counterparts in the EU. From 2010, investment in agriculture, especially machines and equipment, has been growing more rapidly. Unfortunately, the results of this investment are not yet clearly apparent, unless this is what caused the cost of employment to rise up as much as in the EU, despite the fact that wages are increasing at a greater rate than in the EU.

¹⁵ Because petroleum products make up a substantial portion of Lithuanian manufactured products, the decrease of petroleum prices has a greater effect on Lithuania's results than on other EU states.

Chart J. Growth of the export market share for good of Lithuanian origin and exchange rates

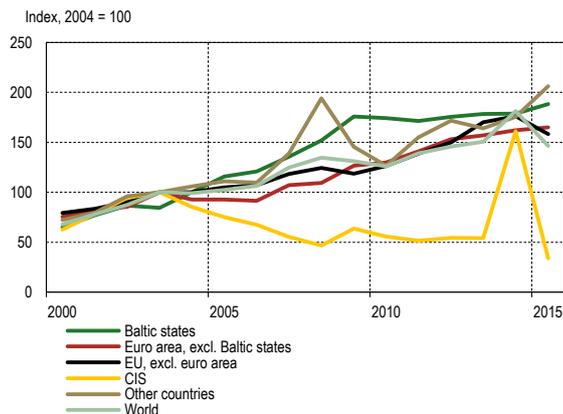


Sources: Statistics Lithuania, Eurostat and Bank of Lithuania calculations.

an impetus may not be enough to compensate short-term losses of Lithuania's market share. This is determined by many factors, including the fact that it takes time to draw up or amend trade deals with other countries and not all exporters and importers are sufficiently insured against currency fluctuations, or manage to adjust their pricing in time.

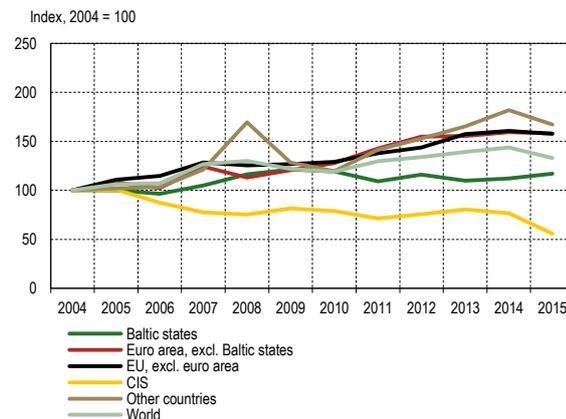
In this case, the fluctuation of the euro is not a sign of the faltering competitiveness of Lithuanian exporters because the fluctuations of the exchange rate of the euro and US dollar depend on much more significant economic factors.¹⁶ However, it can have an impact on Lithuanian exporters, but this applies more to certain product groups. Exchange rates are more relevant to exported goods that can easily be sold in markets experiencing rising prices. Such products include agricultural products and other raw materials necessary for production.

Chart K. Lithuania's market share for goods in the world and specific regions (first indicator)



Sources: UN Comtrade and Bank of Lithuania calculations.

Chart L. Market share of goods of Lithuanian origin in the world and specific regions (second indicator)



Sources: UN Comtrade and Bank of Lithuania calculations.

Certain factors influencing the country's market share can also be observed by grouping Lithuania's exports based on regional markets. From 2000, especially with Lithuania's accession to the EU, Lithuania's market share changed unevenly in various regions of the world, increasing in most and decreasing or remaining the same in the CIS region (see Chart K).¹⁷ Lithuania's market share saw tremendous growth from 2000 to 2008 in the Baltic countries and other (non-EU and non-CIS) countries. During this period, the market share tripled, largely due to re-exports, while the export of goods of Lithuanian origin was less affected (see Chart L). From 2009, Lithuania's market share in the Baltic States essentially remained unaffected. Its market share in other (non-EU and non-CIS) countries decreased drastically over 2009–2010, later growing until 2015. As of late, these countries have noticeably contributed to the growth of Lithuania's market share: in 2015, exports into these countries made up around 20 per cent of Lithuania's total exports. Lithuania's exports to the USA, Ukraine, Norway and Saudi Arabia are significant. The lead-up to 2008 saw the enlargement of Lithuania's market share in the euro area and EU countries not in the euro area. It continued to grow even after the global financial crisis, as Lithuania's open economy began to pick up. On the other hand, Lithuania's market share in the CIS region decreased until 2008, and did not change in any essential way after the global financial crisis, except for the past year.

¹⁶ The ECB identified two factors that influenced fluctuations of the value of the euro in 2015. These were different cyclical positions and monetary policy stances across major economies (ECB, 2015).

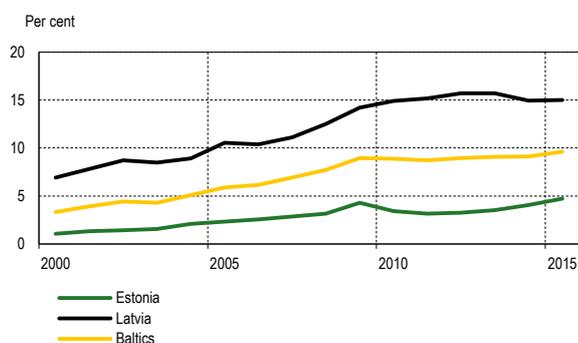
¹⁷ UN Comtrade data shows that Belorussian imports from Lithuania grew by a factor of 7 from 2013 to 2014 (especially due to imports of fruit and vegetables, cars and equipment); however, data provided by Statistics Lithuania and the IMF points to a decrease in trade. These inconsistencies are likely the result of different trade accounting systems.

3. Lithuania's export market share in the EU

Lithuania's market share in the EU was analysed by separating the market of the Baltic States from the EU market.

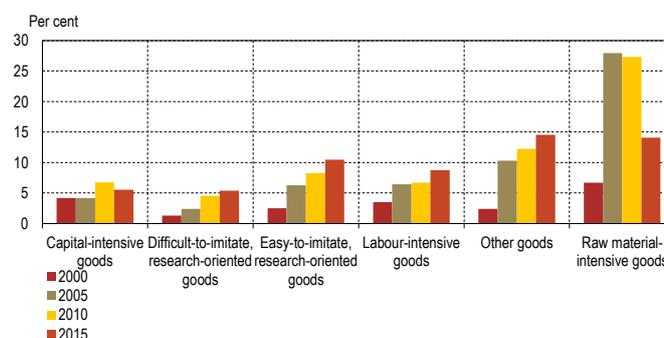
Lithuania's market share in the Baltic States is rather substantial – almost 10 per cent. The market share for certain smaller products is even larger. In 2015, Lithuanian products made up almost half of the vegetable oil and seed imports in the Baltic countries, over 40 per cent of tobacco and tobacco product imports, around a third of dairy products and bird eggs as well as grain and grain product imports. Since 2010, Lithuania's market share in Latvia has remained at the 15 per cent mark (see Chart M). Lithuania's market share in Estonia is smaller, at around the 5 per cent mark, but it is increasing.

Chart M. Lithuania's export market share for goods in the Baltics



Sources: UN Comtrade and bank of Lithuania calculations.

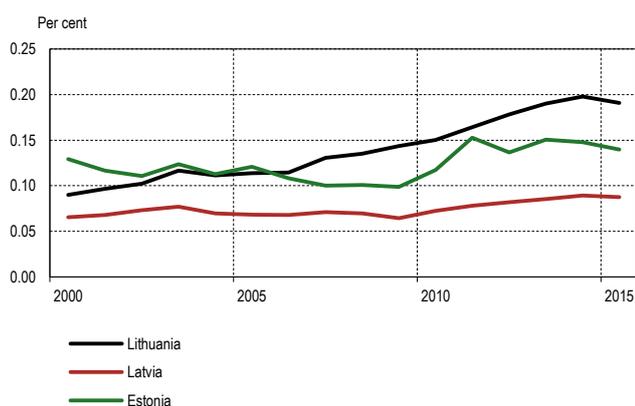
Chart N. Lithuania's export market share for goods in the Baltics by product group



Sources: UN Comtrade and bank of Lithuania calculations.

Limited growth of Lithuania's market share in the Baltic countries in recent years, especially in Latvia, can partially be explained by two factors: the decommissioning of the Ignalina Nuclear Power Plant and the discontinued development of fertilizer exports in the region. This is apparent in Chart N, where electricity is attributed to capital intensive goods, and where fertilizer is attributed to material intensive goods. In 2015, compared to 2010, the market share of capital intensive goods decreased because electricity imports from Lithuania decreased with the decommissioning of the Ignalina Nuclear Power Plant. Lithuania's market share, excluding electricity and mineral products, increased in the Baltic countries, even though this growth was slower prior to 2009. There was a steep drop in the market share of Lithuanian fertiliser in the Baltics: it made up 44 per cent in 2007 and only 14 per cent in 2015. Russia's market share increased by the same amount; thus, Lithuania's market share was taken over by Russian exporters. However, fertilizer exports to other countries grew, so Lithuania's market share in global fertilizer exports did not decrease.

Chart O. The Baltic countries' market share for goods in the EU, excluding the Baltic market



Sources: UN Comtrade and Bank of Lithuania calculations.

Lithuania's market share in other EU countries is substantially smaller than in the Baltic countries. However, according to data for 2015, exports to the EU, excluding the value of exports to the Baltic States, have grown by a factor of 3.4, and the majority of products are goods of Lithuanian origin. Lithuania's market share in the euro area, excluding the Baltic States, is about 0.16 per cent, and its market share in the EU, excluding the euro area, is around 0.28 per cent. However, certain product groups take up a larger share of the market: In 2015, Lithuania had 7.2 per cent of the EU market share, excluding the euro area, for raw hide and fur imports, 6.4 per cent of fertilizer imports, 3.7 per cent of tobacco and tobacco product imports and 3 per cent of furniture imports. Lithuania's market shares in the euro area (excluding the Baltic market) were similar, except for in the raw hide and fur product group (the latter was much smaller).

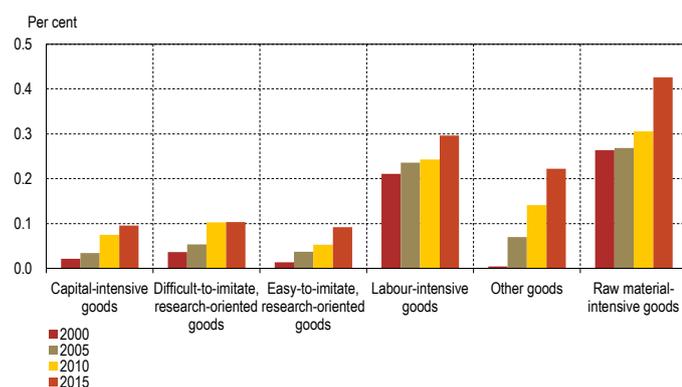
Although Lithuania's market share in the EU is small, it began to increase rapidly since the early 2000s and especially after Lithuania's accession to the EU. By 2015, it nearly doubled and substantially surpassed the market shares of the other Baltic States. In 2000, the market shares of all three Baltic States were similar (especially in the euro area), but by 2015, Lithuania's market share had surpassed the market share of the other Baltic States by a factor of two. The market share in other EU countries grew largely due to increased exports of products of Lithuanian origin. From 2004 to 2015, the market share for goods of Lithuanian origin increased by 67 per cent. The market share of most goods increased,

demonstrating competitiveness (see Chart P). This increase was largely the result of increases in exports of Lithuanian furniture¹⁸, fertilizer, tobacco and tobacco products, meat and meat products, milk and dairy products as well as fish.¹⁹

From 2014 to 2015, competition increased in certain EU markets and this made it difficult for Lithuania to compete, especially in the dairy and furniture markets. This increase in competition was the result of newly-instated import restrictions by Russia. These had a significant impact on dairy product exports. Because both Lithuania and the EU export more dairy products than they import, the closing Russian market produced a surplus of such products. Milk prices dropped and the need to sell in other foreign countries increased. Lithuanian dairy producers sold comparatively less product than the dairy producers of other countries, resulting in a decreased market share for Lithuania's dairy industry. This decrease meant that Lithuania found itself in a deteriorating competitive position; however, some positive insights can be gleaned from the situation. For example, in the past year, as milk prices fell, the manufacturing costs of EU dairy producers have gone up (EU Milk Market Observatory 2016). It is likely that some of them are operating at a loss in order to preserve their market share in the short term. This situation should not be sustainable in the long term. The reviving economies of the southern EU states also contributed to the greater competitive environment. These countries began to expand the production of certain products and increase exports. Portugal, Spain, Greece and Cyprus increased furniture exports to the EU and this expansion effort surpassed Lithuania's export growth. Although these countries do not necessarily compete with Lithuania in the same regions, competition has, in general, increased in the EU. However, the latest data shows that the rate of growth of the southern countries' furniture exports is slowing, whereas Lithuania's is picking up speed, thus the changes that Lithuanian exports are undergoing can be viewed as short-term trends.

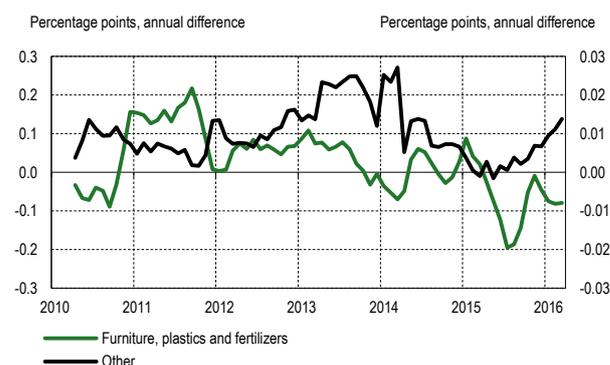
It is difficult to state that Lithuania is encountering competitiveness issues in the EU, unless the focus shifts to several specific markets. Because the market share of two large product groups (furniture and plastics) is decreasing, this negatively affects the general growth of Lithuania's market share in the EU. If these product groups and the fertiliser²⁰ product group were to be eliminated, the remaining share of the product market would demonstrate growth from 2011 (see Chart R). It is worth pointing out that from 2012 to 2013, it increased slightly more significantly. This was the result of the temporarily deteriorating situation in the southern EU states. 2011 saw a second wave of recessions sweep across the southern EU states (e.g., Spain and Italy) which resulted in their decreased imports as well as the decreased exports of their most important trade partners (e.g., Germany, the Netherlands, other southern EU states). Because Lithuania has comparatively few trade relations with the southern EU states, and exports to other EU countries continued to grow, Lithuania's market share in the EU increased more rapidly. With the revival of the southern economies in 2013–2014, Lithuania's market share within the EU once again started to grow at a slower pace. Over the entire course of the reference period, Lithuania did not lose its market share in the southern EU states. In some cases, this market share even increased, for example, in Spain, where Lithuanian furniture exports began to grow, followed by the increasing exports of plastics, fertilizer and grain. Spain became one of Lithuania's most important trade partners in the euro area.

Chart P. Lithuania's export market share for goods in the EU, excluding the Baltic states, by product group



Sources: UN Comtrade and bank of Lithuania calculations.

Chart R. Annual growth of Lithuania's market share for goods in the EU, excluding the Baltic states (3 month averages)



Sources: Eurostat and Bank of Lithuania calculations..

¹⁸ This refers to SITC product category 82: Furniture, and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings.

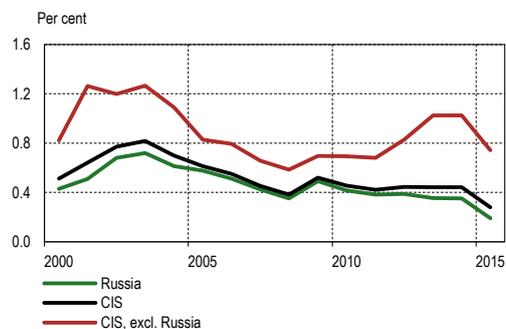
¹⁹ SITC product category 3: Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof.

²⁰ Even though the market share for fertilizer grew until 2015, fertilizer exports are prone to significant fluctuation because they are manufactured and exported only by a few companies.

4. Lithuania's export market share in the CIS

Lithuania's market share in the CIS countries amounts to 0.28 per cent.²¹ It had declined from levels observed in the early 2000s and the decline hastened after Lithuania's accession to the EU. Even though Lithuania lost a portion of its market share in the CIS countries before the financial crisis, this tendency changed over the course of the past few years, with its market share still decreasing in Russia but increasing in other CIS countries, at least until 2014.²² In 2015, the market share in the entire CIS region decreased substantially because of Russia's newly-instated restrictions on imported goods and the general economic downturn in the region, which had a negative effect on trade conditions with these countries.

Chart S. Lithuania's export market share for goods in the CIS



Sources: UN Comtrade and bank of Lithuania calculations.

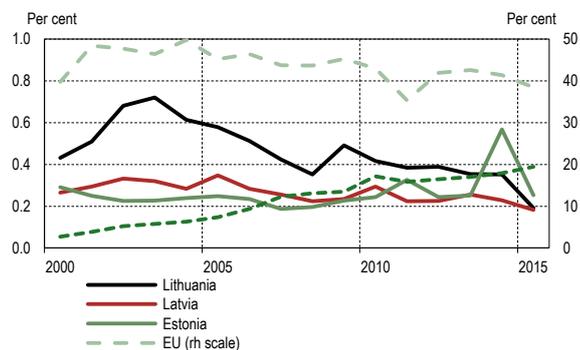
The expansion of Lithuania's trade relations with CIS countries is constantly affected by instability in the region. Russia experienced economic crises in 1999, 2009 and 2015. Lithuanian exporters also encounter difficulties at the customs office, which lead to losses. In addition to this, Russia announced in 2014 that it was placing restrictions on imported products (e.g., meat and dairy products), which played a significant role within the structure of Lithuanian exports. Under these circumstances, Lithuanian exporters began to look to the growing appeal of alternative markets, such as the EU.

However, Russia's market and the CIS region can be very profitable, so Lithuanian businesses still look for ways to break into the market and insure themselves against risk at the same time. One way to do so – for Lithuania to invest in the CIS – contributed to the decrease of Lithuania's market share indicators within the region.

The furniture industry, one of Lithuania's largest exporters, has taken to setting up companies in Russia and Belarus, thereby reducing the demand for furniture exports from Lithuania. Russian labour costs are relatively low, there are fewer transportation costs, customs taxes are not applied to locally produced goods, customs issues can be avoided and the impact of the fluctuating rouble can be mitigated.

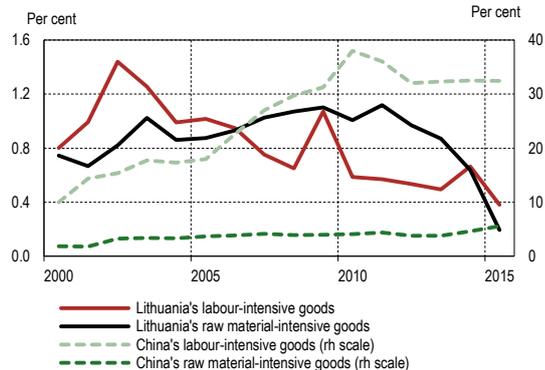
Increasing competition within Russia is also an important factor. Over the past five years, the share of exports to Russia in about two thirds of SITC product groups, including furniture, has decreased.²³ Russian import data shows that over the course of the reference period, Lithuania and the majority of EU countries lost their market share, while China's market share in Russia increased (see Chart T).²⁴ The greatest increases occurred in export shares of product groups that require greater labour resources, Chinese products and other groups: easily reproducible, research-oriented Chinese products. Each market share exceeds 30 per cent. Thus, decreases in Lithuania's market shares in certain sectors (e.g., clothing and footwear) can be linked to the growth of Chinese exports. On the other hand, China exports fewer goods requiring greater resources of raw materials. Therefore, Lithuanian businesses expanded more in this area, at least until 2014, when restrictions on food products came into force (see Chart U).

Chart T. Lithuania's and selected countries' export market shares for goods in Russia



Sources: UN Comtrade, IMF and Bank of Lithuania calculations.

Chart U. Lithuania's and China's export market shares for goods in Russia within specific product groups



Sources: UN Comtrade and Bank of Lithuania calculations.

²¹ This data does not cover a large portion of re-exports, which in 2015 made up 90 per cent of all exports to the CIS region. It is, therefore, more suitable as a statistic for assessing the competitiveness of Lithuania's industrial and agricultural sectors as opposed to analysing total exports.

²² UN Comtrade has thus far only published 2015 data for five CIS countries. Their data for 2014 has been modelled on data from 2013 due to the specific nature of data from Belarus.

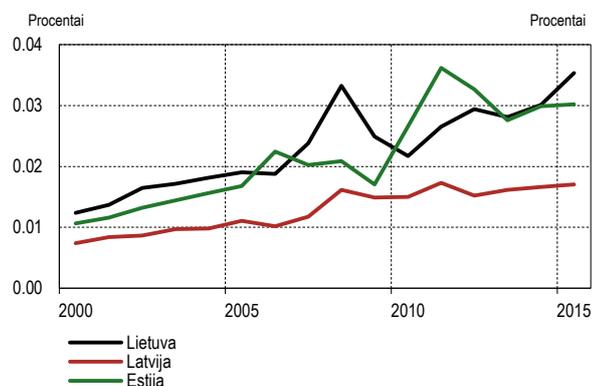
²³ An important exception is fertilizer export. Market shares also increased in products groups such as sugar, sugar products and honey, drinks, non-organic chemicals, cork and wood, various food products and mixes.

²⁴ Estonia is an exception. It successfully maintained a relatively stable Russian market share for 15 years; however, this was largely the result of Estonia's exports of remote communications (telecommunications) and sound recording/replaying devices and equipment. Excluding these products, Estonia's market share decreased.

5. Lithuania's export market share in other countries

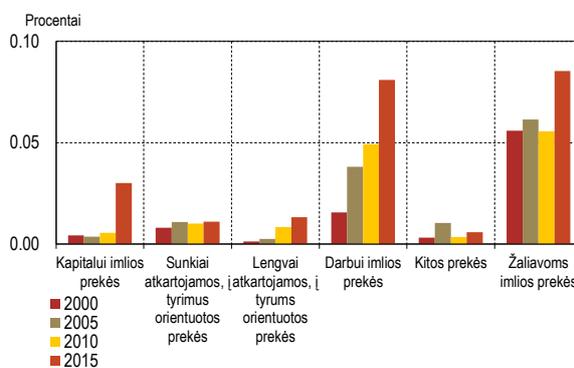
In other countries, Lithuania's market shares increased over the reference period, but only reached 0.04 per cent by 2015. The market shares of the other Baltic countries followed similar trends (see Chart V). Substantial market share growth was experienced in the USA, Norway, Turkey, India and Japan. After the financial crisis, Lithuania's market shares in Norway, Turkey and India increased at a slower rate, but grew more rapidly in the USA and especially Japan (due to tobacco and tobacco product exports). Lithuania's market share in China also grew, especially over 2014–2015.

Chart V. Growth of Baltic market shares for goods in other countries



Šaltiniai: „JT Comtrade“ ir Lietuvos banko skaičiavimai.

Chart Z. Lithuania's market share for goods in other countries by product group



Šaltiniai: „JT Comtrade“ ir Lietuvos banko skaičiavimai.

Lithuania's market shares grew in the majority of product groups (see Chart Z) demonstrating competitiveness here as well. Market shares in these countries grew largely due to fertiliser and furniture exports (although the expansion of these slowed due to the global financial crisis) as well as tobacco, grain, cork and wood product, metal product and prefabricated building exports (the growth of the market share for these products increased at a faster pace after the financial crisis). In 2015, with the devaluation of the euro, the furniture market share dropped, especially in the USA; therefore, it is likely that the exchange rate of the euro and US dollar had an important impact on the growth of market shares in the said countries.

Exports to said countries involve a greater concentration of products. Four product groups (furniture, fertiliser, grain and tobacco) make up 44 per cent of Lithuania's total exports to these countries while the exports of these product groups make up 27 per cent of all Lithuania's exports to the EU. For this reason, changes in the export of these products have a great impact on market shares in the said countries. For example, because of increased exports of fertiliser to India in 2008, Lithuania's market share experienced significant growth (see Chart U), later experiencing a corresponding decrease due to a fall in fertiliser exports. This rather substantial concentration of products can be explained by the fact that Lithuania does not have many large enterprises manufacturing products that could be exported to faraway markets. In addition to this, general EU regulations do not apply in these markets, thus in order to expand exports here, exporters must invest more into exploring markets, maintaining business relations and adapting products for local markets.

Conclusions

Lithuania's global market share consistently increased from 2000, except during the years of economic recession. The present analysis shows that the growth of Lithuania's market shares can largely be attributed to re-exports and investment. Lithuania's market shares grew in the majority of regions and various product groups, only decreasing in the CIS region. This can be explained by Lithuanian companies reorientating themselves towards alternative markets, Lithuanian investment in the CIS and increasing competition from developing market economies, for example, China.

From 2014 to 2015, the growth of Lithuania's market shares slowed. This change of pace was brought about by decreasing exports due to newly implemented Russian restrictions on trade and increasing competition with the EU. 2015 saw a fall in the value of the euro, which could have also had an impact on the drop in market share indicator values over the short term. Even though competition is growing and wages are increasing in Lithuania at a faster rate than in most other EU countries, there is so far no basis for stating that Lithuania's market shares are no longer growing due to increased labour costs: first, market shares are showing negative growth only in several product groups and the CIS region; second, the ratio between labour costs and added value in the manufacturing sector, which contributes the most to Lithuanian export, increased significantly less than in other EU countries ever since the global financial crisis.

Sources

Bank of Lithuania. 2013a: Lietuvos eksporto rinkos dalies ES raida: struktūrinis vertinimas. Lietuvos ekonomikos apžvalga, November 2013.

Bank of Lithuania 2013b: Lietuvos eksporto rinkos dalių kaitos veiksniai 2000–2011 m. Lietuvos ekonomikos apžvalga, May 2013.

Bank of Lithuania 2015: Lietuvos konkurencingumo apžvalga. Series of topical articles. No 8.

ECB 2015. Annual Report 2015.

EU Milk Market Observatory 2016. EU Gross Margin, Q1 2016.

Notten T. E. H. 2015: The economic importance and determinants of Lithuanian re-exports. Pinigų studijos 2.

Statistics Lithuania. 2014. Užsienio prekybos statistinės apskaitos metodika. http://osp.stat.gov.lt/documents/10180/585363/Uzsienio_prekybos_metodika.pdf

Stonys M., Grebliauskas A. 2012: Lietuvos pramonės eksporto konkurencingumo vertinimas. Taikomoji ekonomika: sisteminiai tyrimai 6(2).