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LIETUVOS BANKAS
EUROSISTEMA

Lithuanian Economic Review

2020

SEPTEMBER

The Lithuanian Economic Review analyses the developments of the real sector, prices, public finance and credit in Lithuania, as well as the projected development of the domestic economy. The material presented in this review is the result of statistical data analysis, modelling and expert assessment. The review is prepared by the Bank of Lithuania.

The cut-off date for the data used in the publication is 11 September 2020.

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ABBREVIATIONS

CIS	Commonwealth of Independent States
EC	European Commission
ECB	European Central Bank
ETS	emissions trading system
EU	European Union
EURIBOR	Euro Interbank Offered Rate
Eurostat	statistical office of the European Union
Eurosystem	European Central Bank and euro area national banks
FDI	foreign direct investment
GDP	gross domestic product
GHG	greenhouse gas
HICP	harmonised index of consumer prices
ICT	information and communications technology
IPP	intellectual property product
IMF	International Monetary Fund
MFI	monetary financial institution
NFC	non-financial corporation
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PEPP	Pandemic Emergency Purchase Programme
PMI	purchasing managers' index
R&D	research and development
RE	real estate
REER	real effective exchange rate
UK	United Kingdom
US	United States of America
VAT	value-added tax



BUSINESSES



The worst fallout from the pandemic was faced by businesses where social distancing is difficult or impossible. Companies supplying them with goods and services were also among those most affected by COVID-19

HOUSEHOLDS



COVID-19 implications on households were relatively mild due to state stimulus measures and strong financial health of the corporate sector



Investment

-7.7%
in 2020

6.4%
in 2021



Exports

-3.8%
in 2020

6.9%
in 2021



External demand

-9.8%
in 2020

6.8%
in 2021



Wages

6.8%
in 2020

3.1%
in 2021



Unemployment

8.8%
in 2020

8.1%
in 2021



Consumer spending

-2.4%
in 2020

3.9%
in 2021

Lithuania's economic downturn was among the mildest across the EU



-2.0%
of GDP
in 2020

+3.1%
of GDP
in 2020



General government deficit

8.9% of GDP
in 2020



General government debt

47.1% of GDP
in 2020



Inflation

1.0%
in 2020

1.2%
in 2020

GOVERNMENT



COVID-19 containment measures tremendously boosted general government expenditure



Implemented measures to support household income, maintain jobs and ensure business liquidity



Rising general government deficit and debt

PRICES



Inflation should remain subdued in the near future



Cheaper fuels due to falling crude oil prices



Increasing prices of medical and dental services

LITHUANIA'S ECONOMIC DEVELOPMENT AND OUTLOOK

The Bank of Lithuania has substantially upgraded its GDP forecast for Lithuania as a result of the better-than-expected economic performance observed in the first half of 2020. It now projects that the country's real GDP will fall by 2.0% in 2020. The damage sustained by Lithuania's economy has so far been relatively moderate. Despite rather stringent lockdown measures introduced in spring that put a hamper on some economic activities, the economic downturn in Lithuania in the second quarter of 2020 was among the mildest across the EU, as the country's real GDP declined only by 4% year-on-year.¹ Overall, the economic contraction in 2020 will be less pronounced than previously expected thanks to more favourable economic dynamics, less severe labour market conditions and additional fiscal, regulatory and monetary policy measures (for more details, see Chapter II "Monetary Policy of the Eurosystem") rolled out to support the economy. According to current forecasts, Lithuania's economy is expected to rebound as early as in the second half of 2020, and to reach its pre-crisis levels in 2021. Given the less pronounced contraction this year, growth trends for the year to come should unfold in a similar vein – Lithuania's real GDP is projected to increase by 3.1% in 2021. The economy will benefit substantially from fiscal measures, which may add 2.3 percentage points to the country's GDP growth in 2020 and 2.6 percentage points in 2021. These forecasts have been underpinned by the assumption of potential resurgence in COVID-19 infections in Lithuania and the rest of the world, which, however, this time round would not entail stringent virus containment measures, such as a nationwide lockdown. Scientists are not expected to introduce a medical solution to the general public before 2021, which implies that growth is set to be constrained by high epidemiological and economic uncertainty.

The COVID-19 pandemic has caused a major shock to the global economy. Millions of COVID-19 cases, growing hospitalisation rates, including overwhelmed hospitals in some countries, as well as a shortage of equipment and supplies prompted policymakers to take stringent measures to contain the spread of the virus. The threat of the pandemic and government restrictions led to an enormous slump in global economic activity, disruptions in production and supply chains, a fall in international trade flows as well as a decline in consumer and business expectations. The world's major economies failed to avoid a huge downturn despite large-scale fiscal stimulus and monetary policy measures that had been put in place. In the second quarter of 2020, the US economy plunged by more than 9% year-on-year, whereas the euro area and the UK recorded annual declines of 15% and more than 20% respectively. Nonetheless, the easing of restrictions on mobility and business across countries triggered some recovery in global trade, activity and economic outlook. Meanwhile, China – which recorded improvements in the epidemiological situation ahead of other regions – saw its economy return to positive growth rates already in the second quarter of 2020.

Weakening external demand has weighed on Lithuania's exports of goods and services, yet there already are some signs of recovery. The pandemic and its containment measures introduced by the governments of Lithuania's major export partners have led to a significant drop in external demand. As a result, Lithuania's real exports of goods and services slumped by more than 8% year-on-year in the second quarter of 2020. However, the decline was substantially less pronounced compared to external demand. This was determined by the structure of the country's exports, given that investment goods and travel services, i.e. the most affected categories, account for a relatively minor share of Lithuania's foreign sales. Moreover, Lithuania, contrary to some other countries, did not impose any operational restrictions on manufacturing during the lockdown. The country's imports of goods and services decreased more than exports, which in turn led to a rise in net exports that made a positive contribution to Lithuania's real GDP growth. The tradable sector has already started showing tentative signs of gradual recovery: since June manufacturing output volumes (excluding mineral products) have been rising, while the manufacturing capacity utilisation rate and exports of Lithuanian-origin goods (excluding mineral products) have increased (for more details, see Chapter V "External Sector"). However, industry surveys suggest that local industrial firms still face insufficient demand. Exports are projected to fall by 3.8% this year, i.e. much less than previously expected. In 2021, the

¹ Based on data adjusted for seasonal and workday effects.

recovery of external demand will propel the growth of exports to 6.9%, which will become the key driver of economic recovery.

Despite heightened uncertainty and deterioration in the labour market, the slump in private consumption was less severe than feared at the onset of the pandemic. The restrictions imposed due to the health crisis and a rise in economic uncertainty have led to an annual fall of more than 5% in household consumption expenditure in the second quarter of 2020. However, household consumption has already switched to a very rapid recovery mode. As a result, retail trade turnover exceeded its last year's level already in May – this was mainly driven by the sound financial stance of the country's households, supported by the growing wage bill and social transfers, as well as improving consumer confidence after the end of the lockdown (for more details, see Chapter III “Real Sector”). Even though the labour market took a turn for the worse, unemployment rose less than projected, with its rates going up by mere 2.4 percentage points year-on-year, to reach 8.5% in the second quarter. A larger increase in unemployment was stifled by better economic releases, government support to the country's corporate sector affected by the pandemic and the rebound in economic activity (for more details, see Chapter IV “Labour Market”). The more positive economic situation also suggests that the labour market development in the projection horizon should be more favourable than previously anticipated, and the economic recovery should send the unemployment rate on a downward path as early as at the end of 2020. The average wage in the country should increase by 6.8% in 2020 due to this year's hike in the minimum wage, rapid wage growth in the public sector and better-than-expected economic performance. In 2021, however, wage growth should slow down to 3.1%, on the back of the prevailing elevated uncertainty and less pronounced labour shortages. Private consumption is projected to shrink by a meagre 2.4% in 2020 and rise by 3.9% in 2021, i.e. less than previously expected, due to the higher comparative base.

Investment has been hit by both the pandemic and the EU Mobility Package. In the second quarter of 2020, investment volumes in Lithuania fell by more than 11% year-on-year. The downward effect on private investment from the pandemic and the prolonged economic uncertainty was exacerbated by developments in the transport sector, triggered by the gradual rollout of the EU Mobility Package. As a result, investment in vehicles plummeted by an annual 75% in the second quarter of 2020. During the projection horizon, weak demand, heightened uncertainty and shrinking financial resources of the country's corporate sector are expected to further weigh on investment growth in the private sector. At the same time, public investment should boost investment growth thanks to the fiscal measures adopted by the authorities. However, a less effective than expected use of fiscal stimulus funds may bring up certain challenges. Investment is projected to decrease by 7.7% this year, before rebounding to 6.4% in 2021.

Since the country's economic outlook is clouded by high uncertainty, the Bank of Lithuania has set out two alternative scenarios – a severe and a mild one – in addition to the baseline scenario. The severe scenario assumes a significant deterioration in the global epidemiological situation at the end of 2020 and in early 2021, in response to which policymakers of the world's major economies would reintroduce restrictions on economic activity, albeit less stringent than in spring 2020. Other assumptions include the introduction of a medical solution to fight COVID-19 in mid-2021, which, however, would not be immediately effective, as well as the deterioration in the financial environment amid increased insolvency and the stalling of external demand early in 2021. Under this scenario, it would take until the second half of 2021 for Lithuania's economy to gather speed. In this case, the country's GDP would contract by 2.4% in 2020 and should remain unchanged in 2021. Meanwhile, the mild scenario assumes a stabilisation of the epidemiological situation across the globe after the current surge in COVID-19 cases, which would render stronger constraints on economic activity unnecessary, as well as the emergence of an effective medical solution in mid-2021. Business and household confidence rates would start improving, while the recovery of global economy would encourage the easing of financing conditions. Based on this scenario, the country's GDP would only decrease by 0.2% in 2020, before increasing to 5.0% in 2021. According to the mild scenario, the economy would get back to the pre-crisis levels already this year, yet it would take Lithuania until 2022 to return to this level under the severe scenario.

Weaker economic activity and lower energy prices will exert downward pressure on consumer prices. With the world still battling the pandemic, prices of crude oil and food commodities are projected to remain depressed this year, which will continue to dampen inflation. Next year, however, the recovery of global economy should accelerate the rise in crude prices. Meanwhile, the expected slower wage growth should diminish pressure on prices of services – the average annual growth in prices of services is projected to decelerate to 4% in 2020, whereas in 2021 it should increase at a rate slightly above 2%. Average annual inflation is expected to be 1.0% in 2020 and to reach 1.2% in 2021 (for more details, see Chapter VI “Prices”).

Outlook for Lithuania's economy

Indicators	September 2020 projection			June 2020 projection		
	2019	2020 ^b	2021 ^b	2019	2020 ^b	2021 ^b
Price and cost developments (annual percentage change)						
Average annual HICP inflation	2.2	1.0	1.2	2.2	0.6	0.9
GDP deflator ^c	3.0	0.7	1.4	3.0	-0.4	1.0
Wages ^d	8.8	6.8	3.1	8.8	-2.6	2.0
Import deflator ^c	-0.6	-5.5	1.3	-0.6	-3.8	0.6
Export deflator ^c	0.8	-4.1	0.8	0.8	-4.1	0.4
Economic activity (constant prices; annual percentage change)						
Gross domestic product ^c	3.9	-2.0	3.1	3.9	-9.7	8.3
Private consumption expenditure ^c	3.2	-2.4	3.9	3.2	-12.5	8.6
General government consumption expenditure ^c	0.7	0.3	0.3	0.7	2.9	0.8
Gross fixed capital formation ^c	7.3	-7.7	6.4	7.3	-8.0	5.4
Exports of goods and services ^c	9.6	-3.8	6.9	9.6	-13.8	14.6
Imports of goods and services ^c	5.9	-6.1	8.4	5.9	-10.5	12.6
Labour market						
Unemployment rate (annual average as a percentage of labour force)	6.3	8.8	8.1	6.3	11.9	8.8
Employment (annual percentage change) ^e	0.3	-1.5	0.6	0.3	-5.0	3.1
External sector (percentage of GDP)						
Balance of goods and services	5.4	7.6	6.6	5.4	2.2	3.5
Current account balance	4.2	6.7	4.8	4.2	1.8	1.8
Current and capital account balance	6.0	8.9	6.9	6.0	4.2	3.7

^a The projections of macroeconomic indicators are based on international environment assumptions based on information published by 18 August 2020 as well as other data and information made available before 31 August 2020.

^b Projection.

^c Adjusted for seasonal and workday effects.

^d Wage growth for 2019 excludes corrections made due to changes in the tax and pension systems.

^e National accounts data; employment in domestic concept.

I. INTERNATIONAL ENVIRONMENT

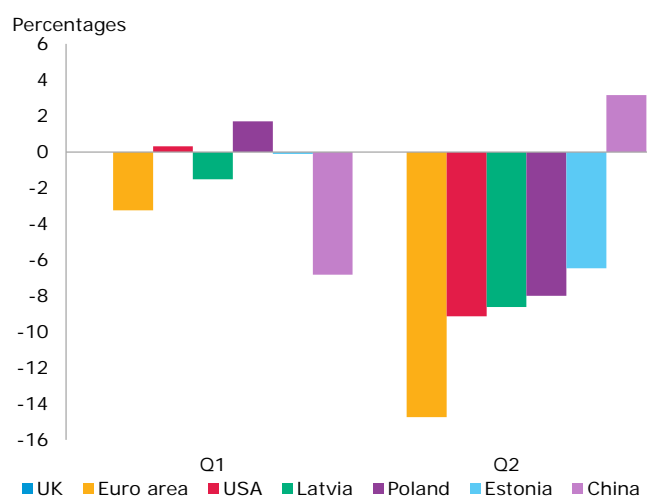
A drastic reduction in mobility triggered by the lockdown, other COVID-19 containment measures restricting activity and movement as well as general cautiousness has led to a sharp fall in demand and supply. In the second quarter of 2020, many of the world's major economies suffered the steepest annual plunge in GDP since the end of World War II. The shutdown of countries also resulted in a significant decrease in international trade volumes. For instance, the global trade volume tumbled by an annual 18% in May, marking the largest fall since 2009. International institutions in their June forecasts projected a significant economic contraction in 2020. For instance, the IMF currently expects the global GDP to decrease by 4.9% this year, while the OECD projects a downturn of 6% – both of these estimates are far more pessimistic compared to the their forecasts published in March.

In the second quarter of 2020, the euro area's GDP plunged by 14.7% year-on-year, yet the retail trade and industry sectors showed improvements in June and July. Among the major euro area economies, the heaviest losses fell upon Spain, which saw its GDP plummeted by an annual 22.1% in the second quarter of the year (see Chart 1). However, the extremely poor GDP performance in the second quarter did not yet reflect the recent improvements in euro area consumer and business expectations as well as the recovery in retail trade and industrial output volumes. The euro area retail trade volume rose by an annual 1.5% in June and 0.4% in July. However, such growth in consumption was partly driven by pent-up demand built during the lockdown. This implies that the rapid growth of consumption is unlikely to continue, as it will most probably be restrained due to the worsening labour market conditions as well as high epidemiological and economic uncertainty. Unemployment, which has so far been relatively mitigated by the euro area major economies thanks to the temporary employment schemes, may soar after the expiry of these measures and evolve into a serious structural problem over time.

Expectations of continued economic recovery are also underpinned by a massive European economic stimulus package which was agreed on in July 2020. The good news is that the EU should not lack financial resources to promote economic growth and implement structural reforms. In late July, the EU leaders clinched a deal on a financial package worth €750 billion, aimed at promoting sustainable economic recovery by allocating a proportionally larger share of funds to the economies most affected by the pandemic. The ECB has also put stimulus measures in place in a bid to maintain liquidity in Europe's credit markets and promote lending. The ECB's stimulus measures are discussed in more detail in Chapter II "Monetary Policy of the Eurosystem".

In the first half of 2020, the majority of countries suffered the steepest fall in GDP since World War II.

Chart 1. GDP dynamics in the euro area, USA, China, Latvia, Poland, Estonia and UK



Sources: Bank of Lithuania and Macrobond.

In the second quarter, the UK economy plummeted by 21.7% year-on-year, mainly on the back of a strong contraction in the services sector. The UK services sector, which represents 80% of the country's economy, in the second quarter shrank by approximately 20% quarter-on-quarter, reflecting the impact of the pandemic and longer-than-expected implementation of its containment measures. The economy suffered a huge contraction in spite of the package of fiscal measures worth 8% of GDP, stimulus programmes unleashed by the Bank of England and the cut in the key interest rates to the all-time low of 10 basis points. In fact, the UK economy has already started showing recovery signs. It should be mentioned, however, that

the issue of a trade agreement between the EU and the UK has not yet been resolved. With post-Brexit trade negotiations still ongoing without much progress, both negotiating parties do not exclude that they may not succeed in concluding new trade agreements by the end of the year, i.e. by the expiry of the existing trade regulations. Such a scenario and the underlying uncertainty may limit the UK-EU trade, and act as an impediment to the economic recovery.

Challenges faced while managing the epidemic and lack of consensus over additional fiscal stimulus may constrain the recovery of the US economy, which contracted by an annual 9.1% in the second quarter of 2020 (see Chart 1). In June, however, the country's economy, supported by public finances and the US Federal Reserve System, started showing early recovery signs. In July, retail trade increased by 5.8% year-on-year, while the decline of industrial output and foreign trade volumes levelled off. In August, the unemployment rate in the country fell by 6.3 percentage points from its April peak, to reach 8.4%. Late in March, the US Congress allocated \$3 trillion for economic stimulus and COVID-19 relief. The bulk of these funds was allocated to one-off allowances and unemployment benefits. These payments, which contributed to the recovery of US consumption, were disbursed by August. A failure to agree with the Democratic majority in the House of Representatives on the extension of relief measures prompted US President Donald Trump to sign executive orders, *inter alia*, deferring the employee share of payroll taxes for workers earning less than \$100,000 a year through the rest of 2020 and extending unemployment benefits, yet at a reduced amount. US business confidence indicators show that during the period under review, the country's services sector recovered at a slower pace than in the EU or China, as it took until August for the PMI of the US services sector to reach the level indicating positive growth of business orders. However, the manufacturing PMI showed upward trends in orders already in July 2020.

China's economy has bounced back into growth after its negative performance recorded in the first quarter, yet the slow recovery of private consumption may impede the country's economic development. Contrary to many Western countries, China suffered the worst economic fallout from the pandemic in the first quarter, when the country's GDP plunged by an annual 6.8%. However, China's economy staged a remarkable recovery already in the second quarter of the year, which saw the country's GDP increase by 3.2% year-on-year (see Chart 1). The rapid recovery in China was fuelled by the growth of industrial output observed throughout the second quarter of 2020 – it accounted for approximately 40% of the country's GDP. The annual growth in industrial output was mainly driven by the public sector's consumption and investment as well as, to a lower extent, exports, which were less affected thanks to increased demand for medical supplies. Meanwhile, the recovery of retail trade in China has been much slower than in the euro area and the US, as households have cut their spending amid high uncertainty and low consumer confidence. Nonetheless, the IMF still expects the country's GDP to increase by 1% in 2020 despite weak domestic consumption.

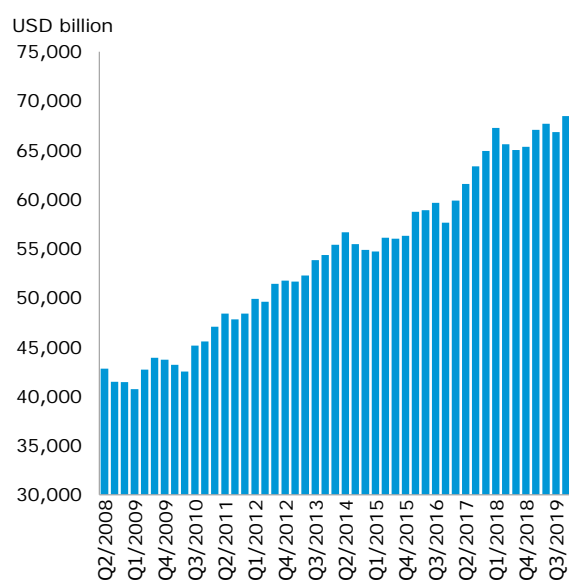
Latvia's and Estonia's economies experienced less severe downturns compared to their Western European peers thanks to a relatively minor decrease in domestic demand, whereas demand in Poland was supported by the rapid recovery of exports. In the second quarter of 2020, the economies of Poland, Latvia and Estonia contracted, on a year-on-year basis, by 8.0%, 8.6% and 6.5% respectively (see Chart 1). During the mentioned quarter, in spite of a decrease in consumer confidence, the volume of retail trade in Latvia and Estonia saw a more modest decline compared to Western Europe. Poland's trade balance showed improvements in the second quarter, which was one of the key factors that contributed to a smaller-than-expected fall in the country's GDP. In the second quarter, exports from Poland, which are relatively more diversified compared to other Central and Eastern European countries, declined by a smaller margin than Latvia's or Estonia's exports. Poland's exports overcame the negative trend in June, with a year-on-year increase of 5%.

Looking towards the next two years, the highest risks to the global economic outlook stem from the potential resurgence of COVID-19 outbreaks, sovereign and corporate defaults as well as financial asset bubbles. The COVID-19 pandemic has not yet been fully controlled and the resurgence of its outbreaks may continue to curb consumption and investment until the introduction of an effective medical

solution. The COVID-19 crisis has forced governments to reach deep into the public purse, which also implies a risk to the sustainability of global economic growth due to potential sovereign and corporate insolvency. Some of the emerging market economies, e.g. Argentina, have already found themselves compelled to restructure their public debt. Debt indicators of the private sector do not provide much scope for optimism either, as NFC indebtedness, expressed in US dollars, in G20 countries reached approximately \$68.5 trillion early in 2020 (see Chart 2). Such trends were determined by low interest rates that kept credit cheap during the past decade. Before the pandemic, approximately half of the total investment-grade NFC debt in North America, Europe, Middle East and Africa had the lowest investment-grade credit rating. This implies that a downgrade by one notch would put this debt into the high-yield category, which would render it ineligible for many institutional investors and would in turn raise borrowing costs. As of February, roughly 5.2% of this lowest investment-grade debt was reclassified as a high-yield debt (see Chart 3). The challenges brought by COVID-19 force businesses to further increase their financial liabilities. Lower demand, increased financial leverage in the NFC sector and downgrades to corporate credit ratings may trigger a surge in corporate bankruptcies and pose a threat to financial stability.

NFC indebtedness in G20 countries reached historical highs.

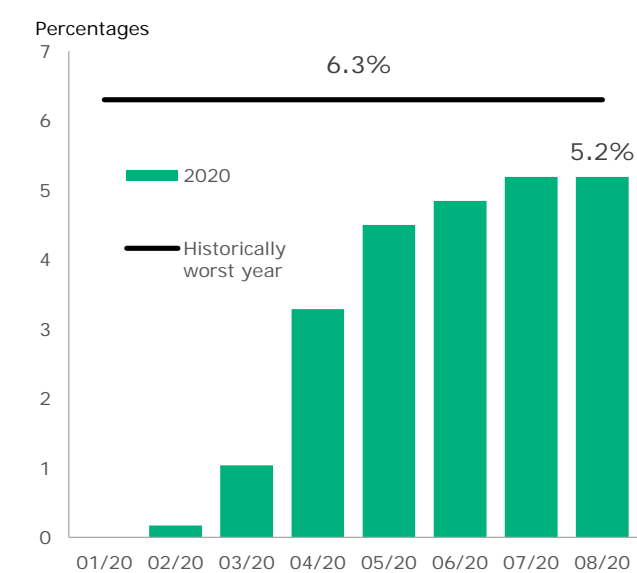
Chart 2. NFC indebtedness in G20 countries



Source: Bank for International Settlements.

The level of the lowest investment-grade debt, downgraded to the high-yield status, is approaching the peak-year level.

Chart 3. Share of investment-grade NFC debt downgraded to the high-yield status



Source: Fitch ratings.

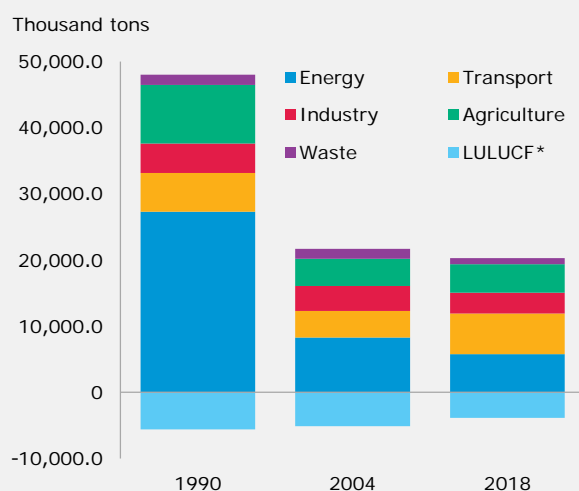
BOX 1

CLIMATE CHANGE PROBLEMS AND POTENTIAL WAYS TO ADDRESS THEM IN LITHUANIA

Rapid global climate change has been increasing the probability of materialisation of physical risks to the economy and the financial system. The average global air temperature has already gone up by approximately 1 degree, compared to the levels observed before the onset of the industrial revolution, as a result of the rising concentration of GHG in the atmosphere.² Although the Paris Agreement of 2015 consolidated the objective of keeping the average global temperature rise well below 2°C compared to the pre-industrial levels, the estimates indicate that current policies may lead to an increase by more than 3°C by the end of the century.³ The rise in the atmosphere's temperature poses a threat of extreme weather conditions, which may cause significant damage to the global economic infrastructure, production capacity and agricultural productivity, disturb global production and supply chains as well as result in losses for insurance undertakings, credit institutions and investors. Governments may be forced to use a large amount of resources to mitigate climate change consequences and support those most affected by them, which could in turn lead to lower financing of public services and heighten the need to increase taxes or borrowing. This could also raise social challenges: for example, with a 5°C rise in global air temperature, the number of asylum applications in the EU could increase on average by 175%.⁴

The greatest progress in reducing GHG emissions was achieved in the first decade of Lithuania's independence.

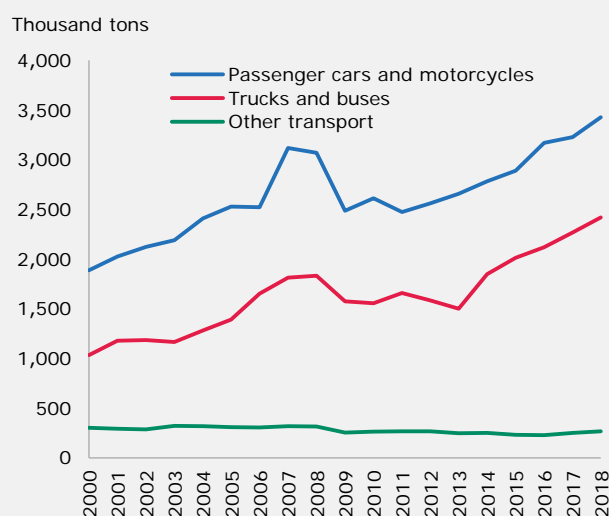
Chart A. Annual GHG emissions in Lithuania by source



Sources: Eurostat and Bank of Lithuania calculations.
*Land use, land-use change and forestry sector – negative values indicate GHG absorption.

In recent years, GHG levels generated by road transport have been growing at a particularly rapid pace.

Chart B. Evolution of annual GHG emissions in the Lithuanian transport sector



Sources: Eurostat and Bank of Lithuania calculations.

The escalating threats determine the need to accelerate the reduction of GHG, and Lithuania will not be an exception as well. Transitioning to a climate-neutral economy is becoming a EU priority. Last year, the EC announced the European Green Deal, which establishes the objective for Europe to become a climate-neutral continent by 2050. The EC will also aim to increase the objective of reducing

² IPCC (2018). Global Warming of 1.5°C, Special Report. The Report can be found [here](#).

³ Climate Action Tracker (2019). More information can be found [here](#).

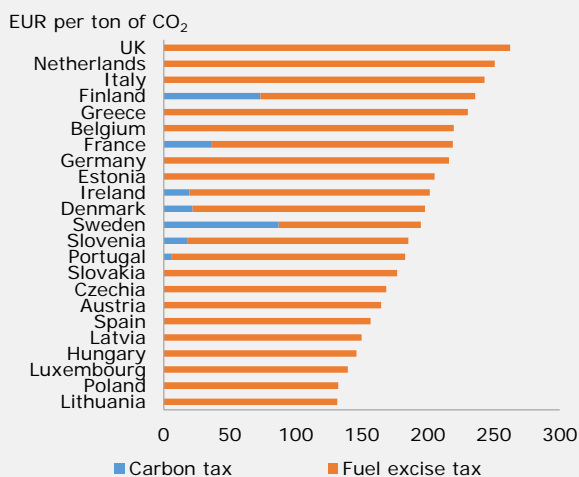
⁴ Missirian, A. and Schlenker, W. (2017). Asylum applications respond to temperature fluctuations. Science, 358(6370), 1610–1614. More information can be found [here](#).

GHG emissions by 2030 from the current 40% to 55% (as compared to 1990). Currently, Lithuania has assumed an obligation to reduce GHG emissions produced by the sectors not participating in the EU ETS by 9% (compared to the levels of 2005). However, GHG emission trends in Lithuania signal that it will not be an easy task. Although since the restoration of Lithuania's independence GHG emissions declined by more than half (mainly reflecting the fall of emissions in the energy and agriculture sectors), no substantial progress has been achieved since 2000.

A rapid increase in transport sector emissions contributed to Lithuania's weak progress in reducing total GHG emissions. During the period from 2004 to 2018, GHG emissions in the sector rose by 53% (see Chart B) and accounted for one-third of the country's total emissions. Such rapid growth was probably underpinned by the increased number of private cars that are relatively old and produce high pollution (the average age of passenger cars in the country is 15 years⁵), intensive traffic (e.g. in 2017, the number of people using public transport in Lithuania was the lowest in the EU, reaching only around 9%, whereas the EU average stood around 17%) and particularly rapid growth of the cargo transportation sector. GHG emissions, excluding the transport sector, declined by 20% in 2004–2018, which was determined by the fall in GHG emissions in the energy, waste management and industrial sectors, whereas agricultural GHG emissions remained broadly unchanged during the said period. Agriculture generates around one-fifth of the country's total GHG emissions. The fact that there is still much room for the reduction of GHG emissions is reflected by the high GHG intensity indicator – GHG emissions to create one euro of value added in the country are 2.3 times higher than the EU average. Particularly high GHG intensity, compared to the EU average, is observed in the transport, agriculture, water supply and waste management sectors (see Chart D). Moreover, in 2008–2018, the decline of GHG intensity in Lithuania was least pronounced across the EU, amounting for a meagre 9%, whereas the EU average at the same time reached 25%.

In Lithuania, taxation of road emissions is one of the lowest in Europe.

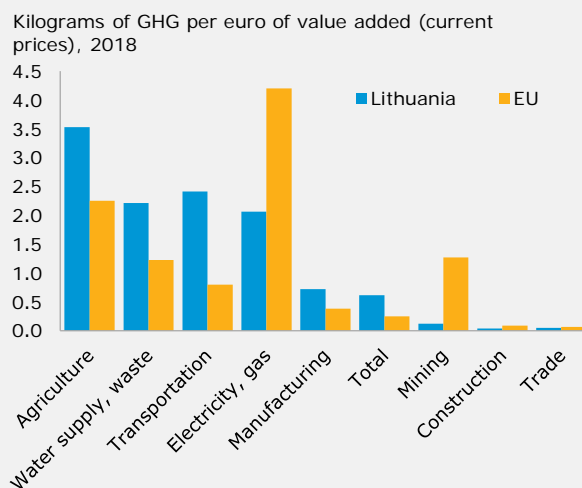
Chart C. Average CO₂ and fuel excise tax rates on road emissions in 2018



Source: OECD Taxing Energy Use 2019: Taxes for Climate Action.

GHG intensity in Lithuania is higher than the EU average in terms of most activities.

Chart D. GHG intensity by economic activity



Source: Eurostat.

Fiscal measures may play a prominent role in meeting the obligations to reduce GHG emissions, especially if the latter are set to be further tightened. Taxation of emissions is considered to be the most effective way to reduce pollution⁶, however, this possibility is not sufficiently

⁵ National Energy and Climate Action Plan of the Republic of Lithuania for 2021–2030.

⁶ IMF (2019). Fiscal Monitor: How to Mitigate Climate Change ([online source](#)).

used in Lithuania. CO₂ is usually subject to a fossil fuel tax, imposed in proportion of its generated CO₂ emissions, or is taxed through CO₂ cap-and-trade systems. One of the examples of such mechanisms is the EU ETS. However, due to its complexity, not all EU companies are required to become its participants, thus only around 45% of generated CO₂ emissions are taxed through this system in the EU⁷. The EU ETS covered only roughly 30% of Lithuania's GHG emissions in 2017.⁸ For this reason, some EU countries also apply CO₂ taxes. Contrary to public investment or emissions regulation, such corrective taxes generate double dividends, as they not only correct market failures, but also generate tax revenue and, therefore, reduce the need for revenue from taxes that tend to be more harmful to the economy. Despite its possibilities, Lithuania does not have a separate CO₂ tax and, even taking into consideration the applicable fuel excise tax, applies some of the lowest taxation rates on road CO₂ emissions in the EU (see Chart C). Higher acceptance of emission taxes by the public and success in their implementation could be supported by the application of compensatory mechanisms to the most sensitive social groups, reduction of taxes that subdue economic activity (e.g. labour taxes), as well as a gradual and expected increase in emission taxes. To achieve climate objectives, it is important that Lithuania not only increases CO₂ taxes, but also waives currently applied tax exemptions for fossil fuel, e.g. the reduced excise duty on diesel used in the agricultural activity or the preferential VAT rate on heat energy.

Fiscal policy stimulus provides the pandemic-hit countries not only with a possibility to boost their economies, but also to set economic transformation on a climate-friendly path. In addition to its high multiplier effect, investment in clean physical infrastructure, energy efficiency of buildings, education, natural capital as well as environment-conducive scientific R&D⁹ has a positive impact on climate as well.¹⁰ The Plan for the DNA of the Future Economy, proposed by the Lithuanian government, with an overall envelope of €927 million, i.e. almost 15% of the total funds planned, aimed for investment in climate change mitigation and energy instruments in 2020 and 2021. The economic stimulus package agreed by the EU leaders in July may have an even greater impact on the economy and the implementation of climate objectives. The package envisages allocation of at least 30% of the total funds of the multiannual financial framework (€1,074.3 billion) and the Next Generation EU instrument (€750 billion) to implement the EU climate objectives.¹¹

It is of high importance for Lithuania to channel these funds to the activities where the largest reductions of GHG emissions could be achieved. However, transition risks must also be managed. For example, investment in modern clean public transport, green private vehicles and expansion of the necessary infrastructure could reduce the transport sector's dependence on fossil fuels as well as lower the level of GHG emissions. Climate-friendly investment, e.g. in the development and expansion of clean energy technologies and production of related products, the demand for which will grow in the future, could not only help Lithuania address climate change problems, but also facilitate the rise of the domestic economy in the value chain. However, it is also important to manage risks stemming from the transition to a greener economy, for example, an increase in structural unemployment and geographical differences in economic development. Therefore, a plan for the transition to a climate-friendly economy must be prepared and implemented as soon as possible, by identifying employees and regions that could be highly affected by such transformation, envisaging compensatory mechanisms, ensuring effective retraining of labour and job creation in climate-friendly activities. Such preparation is crucial for ensuring public support and the successful implementation of climate policies.

⁷ IMF (2019). Fiscal Monitor: How to Mitigate Climate Change ([online source](#)).

⁸ EC, Country Fact Sheet: Lithuania. More information can be found [here](#).

⁹ In low- and medium-income countries, investment in rural areas, e.g. sustainable agriculture, renewal of ecosystems and the use of clean energy equipment, also plays an important role.

¹⁰ Hepburn, C., O'Callaghan, B., Stern, N. Stiglitz, J. and Zenghelis, D. (2020). Oxford Review of Economic Policy, 36(S1). The Review can be found [here](#).

¹¹ EC, Conclusions of the special meeting of 17–21 July 2020 ([online source](#)).

II. MONETARY POLICY OF THE EUROSISTEM

Over the past six months, the Eurosystem has been strengthening its accommodative monetary policy stance in order to mitigate COVID-19 implications on the economy and inflation rates.

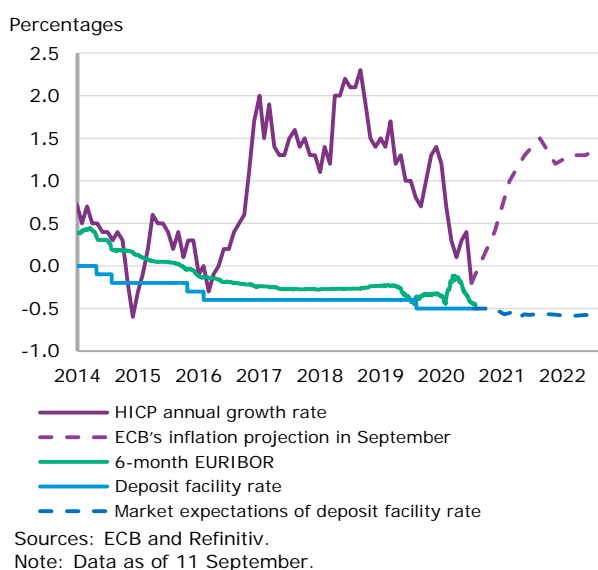
The high level of the accommodative monetary policy is ensured by the exceptionally low ECB key interest rates as well as new and already existing asset purchase programmes and long-term lending operations.

Since March 2020, the ECB's Governing Council has adopted a number of decisions regarding additional accommodative monetary policy measures. On 18 March, it decided to carry out net asset purchases under the PEPP with an overall envelope of €750 billion, which was increased to €1,350 billion on 4 June (12% of the projected euro area GDP in 2020). These purchases will be carried out at least until June 2021 in order to further ease the general monetary policy stance, thus subduing the downward pressure on inflation posed by the pandemic (see Chart 4). Market expectations that the deposit facility rate will not increase for at least a couple of years also contribute to the accommodative monetary policy. Moreover, May saw the start of pandemic emergency longer-term refinancing operations (PELTROs) with an interest rate as low as -0.25%.

The ECB's Governing Council has also eased conditions for targeted longer-term refinancing operations (TLTROs). The decision of 30 April put the interest rate applied to these operations at 50 basis points below the average interest rate applied in the Eurosystem's main refinancing operations. In addition to this, banks that maintained their usual levels of credit provision will enjoy even more favourable conditions, i.e. the interest rate for such operations can be as low as -1%. In June, 742 euro area banks took advantage of TLTROs and the total amount of loans stood at €1,310 billion (12% of the projected euro area GDP in 2020).

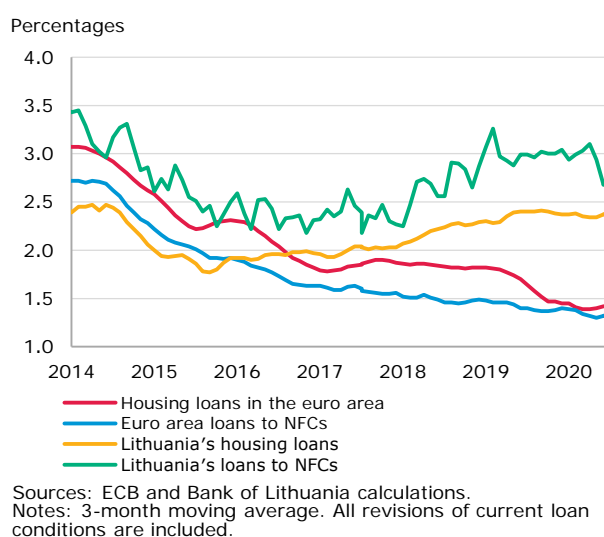
The ECB interest rates remain at very low levels.

Chart 4. Actual ECB interest rates, euro area inflation and market expectations



Funding conditions remain favourable.

Chart 5. Average interest rates on new MFI housing loans and loans to NFCs



The Eurosystem's accommodative monetary policy measures contribute to exceptionally low interest rates. The euro area interest rates (especially in the housing loan market) have been consistently decreasing since mid-2014. During the COVID-19 crisis, the euro area average interest rates saw no significant changes (with only a slight decrease recorded for NFCs) and still remain at historic lows. Despite uncertainty surrounding COVID-19, the average interest rates on new housing loans remained stable in Lithuania, whereas those to NFCs have even slightly decreased since June 2020 (see Chart 5). However, the average interest rates in the country remain higher than the euro area average. Such trends have been driven by both the high concentration in the banking sector and a potentially higher risk of new loans. Yet it

should be noted that if the Eurosystem had not implemented its accommodative monetary policy, loan interest rates in Lithuania would most probably have been even higher.

III. REAL SECTOR¹²

Lithuania's economic downturn triggered by the pandemic in the first half of 2020 was among the mildest across the EU. In the second quarter of 2020, economic activity in the country decreased by only 5.8% since the end of 2019 and by 4.0% quarter-on-quarter, which were some of the best indicators throughout the EU. In the first half of the year, the sharpest fall (by more than one-tenth) in the value added created in Lithuania was recorded in the arts, entertainment and recreation sectors as well as in the activities attributed to business-to-business (B2B) services (e.g. business support or professional services).¹³ These activities were strongly restricted during the lockdown due to the imposed social distancing measures or were highly dependent on the development of other restricted activities. Other economic sectors showed lower decline rates, whereas the value added created by certain activities, such as information and communication or finance and insurance, in the second quarter of 2020 did not fall below the level observed during the pre-pandemic fourth quarter of 2019 (see Chart 5).

The countries that have been least affected by COVID-19, including Lithuania, demonstrated a much more favourable performance in manufacturing and trade, transport, accommodation and catering activities, as compared to other countries in the period under review. In Lithuania, the favourable development of these activities was largely driven by the contained spread of the virus, due to which manufacturing operations were not restricted, a rather strong development of household consumption amid relatively minor losses incurred by the labour market, lower dependence on the tourism sector as well as a relatively smaller magnitude of the COVID-19 outbreak and the economic downturn in the country's main trade partners. These were the key factors that placed Lithuania's economy among the EU countries least affected by the pandemic. The particularly strong performance recorded in the first half of 2020 implies that GDP development will be substantially more positive than previously expected. In 2020, Lithuania's GDP is projected to contract by 2.0% year-on-year, and to rebound by 3.1% in 2021.

In the first half of 2020, Lithuania recorded one of the smallest decreases in household consumption expenditure across the EU, which was determined by the low rate of COVID-19 spread and a relatively mild economic downturn, as well as the economic stimulus measures adopted by the authorities and the strong financial health of the country's corporate sector.

Consumption expenditure in Lithuania shrank by 6.5% in the second quarter of 2020 compared to the fourth quarter of 2019 and by only 5.1% on a year-on-year basis. The aforementioned factors have opened up an opportunity for businesses to retain the majority of their employees and opt for temporary wage cuts or no pay cuts at all in the period under review (for more details, see Chapter IV "Labour Market"). As a result, the wage bill (the main source of household income), measured in chain-linked volumes, continued to grow and increased by an annual 4.3% in the second quarter of 2020 (see Chart 6). In addition, the country's households received significantly more income from social transfers, which increased by one fifth year on year in the second quarter of 2020 in seasonally and working-day unadjusted terms (for more details, see Chapter VIII "General Government Finance"). The fact that Lithuania's households managed to avoid deterioration in their financial stance in the first half of 2020 was also reflected by the EC consumer sentiment surveys, which showed that in the second quarter of 2020 households' assessment of their financial situation reached the highest score in the history of the data series. It should, however, be acknowledged that the pandemic has weighed on household sentiment, which translated into extremely poor expectations about the future economic situation and postponement of major purchases. This, coupled with physical restrictions pertaining to purchase of certain goods and services, emerged as the key cause for a decline in household consumption during the period under review. Nonetheless, the gradual easing of restrictions imposed on trade in goods and the provision of services triggered a recovery of household consumption. For instance, retail sales of clothing and footwear plummeted by more than 70% in April compared to the pre lockdown period,

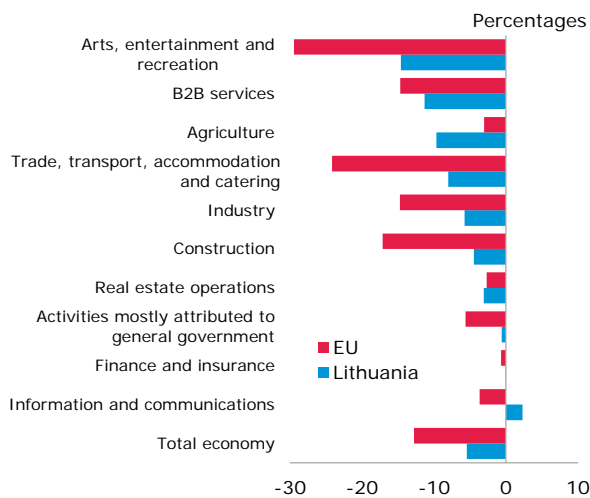
¹² All statistics provided in this chapter are working-day and seasonally adjusted, unless stated otherwise.

¹³ In the Statistical Classification of Economic Activities in the European Community, these services are classified as professional, scientific and technical activities (Section M) and administrative and support service activities (Section N).

but rose above the latter levels already in June. A relatively smaller decline in Lithuania's household consumption was also determined by a less significant effect of lockdown restrictions on the household consumption basket. The share of basic essentials, e.g. food products, in the consumption basket of Lithuania's households is among the highest across the EU, whereas the share of spending on heavily restricted services, e.g. recreation, culture, restaurants and hotels, is one of the lowest in the EU. As a result, household consumption is projected to shrink only by 2.4% in 2020 and to grow by 3.9% next year.

The lockdown led to major differences in the development of Lithuania's economic activities, some of which saw a significant drop in the value added, while others recorded an increase.

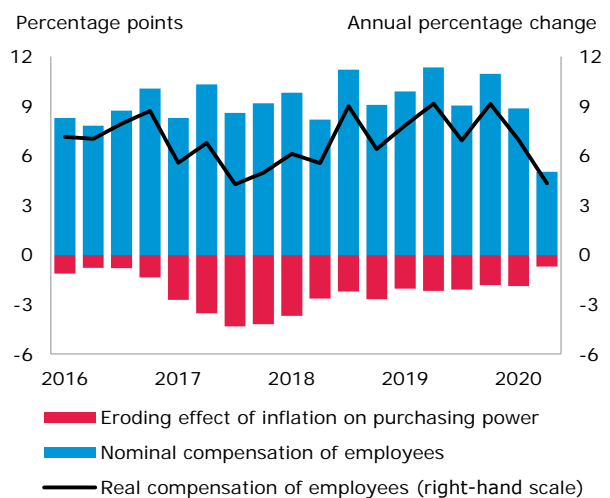
Chart 6. Changes in the value added by economic activities in Lithuania vs EU average (Q4 2019–Q2 2020)¹⁴



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Even though Lithuania's economy was inevitably hit by the pandemic, the wage bill continued to rise in the first half of 2020.

Chart 7. Contributions to the real wage bill (not adjusted for seasonal and working-day effects)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

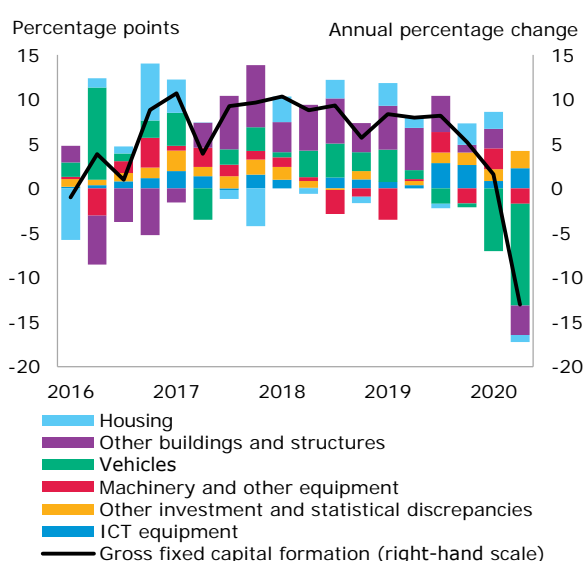
A significant slump in external demand, as well as uncertainty over the future course of the pandemic and the global economic development led to a substantial fall in investment, which contracted by an annual rate of 11.3% in the second quarter of 2020. Investment in capital goods and transport vehicles suffered the steepest decline, while investment in buildings and structures remained at a relatively high level (see Chart 7). Such dynamics of investment in capital goods were mostly driven by a sharp drop in demand for goods exported by Lithuania's manufacturers, tremendous uncertainty over future perspectives and an increase in idle production capacities. For instance, capacity utilisation in the manufacturing sector, which amounted to 77.2% in 2019, approached 72.0% in July 2020. Investment in vehicles was also constrained by the gradual implementation of the Mobility Package. Nonetheless, certain investment types showed the opposite trend. For example, businesses invested in ICT and software in order to provide their employees with facilities necessary for remote work. This type of investment developed a particularly strong growth pace in the second quarter of 2020: spending on ICT equipment soared by one-third in year-on-year terms, while spending on IPP – by nearly 15%. Investment in buildings and structures was mostly fuelled by civil engineering, which in the near future should continue to be driven by the economic stimulus measures implemented by the general government sector. However, the future prospects of investment in other buildings are vaguer, given that housing investment will largely depend on the financial wellbeing of the country's households, while investment in non-residential buildings – on the general macroeconomic environment.

¹⁴ The average EU rates have been calculated using data of the following countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, Spain, Italy, Cyprus, Latvia, Poland, Lithuania, Malta, the Netherlands, Portugal, France, Slovenia, Finland, Sweden, Hungary and Germany.

Overall, the current macroeconomic environment is highly unfavourable for investment. According to an analysis carried out by the Bank of Lithuania (see Annex 2), today a large part of Lithuania's investment determinants are not favourable and should remain so during the projection horizon. A strong economic recovery in the main trade partner countries is not yet expected, high levels of uncertainty persist due to obscurity surrounding the future course of the pandemic and the situation in international markets, while the gross operating surplus is edging down. In such an environment, investment is driven solely by strong domestic demand, which, however, is highly dependent on the scale and duration of the economic stimulus measures implemented by the general government sector. The Bank of Lithuania has estimated that the increased government investment should mitigate the decline in investment by approximately 5 percentage points in 2020. For these reasons, investment should decrease by 7.7% in 2020, yet is expected to recover by 6.4% as early as in 2021.

In the first half of 2020, investment in capital goods and transport showed the largest decline.

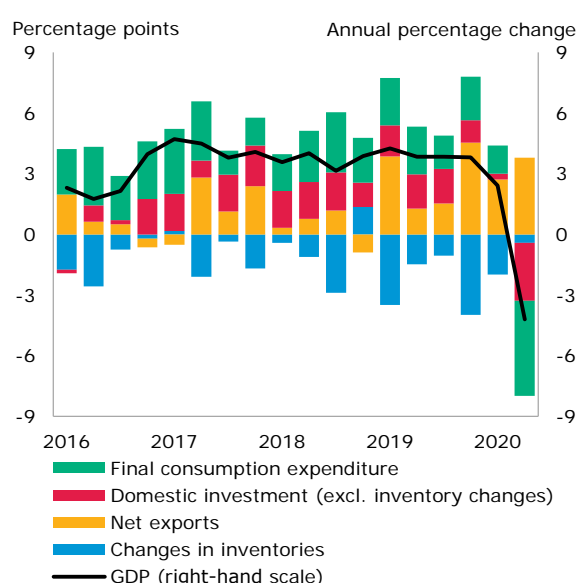
Chart 8. Contributions to investment
(not adjusted for seasonal and working-day effects)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

A steeper drop in imports compared to exports led to a positive contribution of net exports to GDP growth.

Chart 9. Contributions to real GDP
(not adjusted for seasonal and working-day effects)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

A much broader spread of COVID-19 in Lithuania's key trade partners and its containment measures triggered a fall in exports of goods and services. Nevertheless, given a much stronger slump in imports of goods and services, net exports in recent quarters have made a positive contribution to GDP. Lithuania's external demand plunged by nearly 16% in the second quarter of 2020 compared to the pre-pandemic fourth quarter of 2019 (for more details, see Chapter I "International Environment"). However, due to achieved competitiveness of Lithuania's exporters and the absence of operational restrictions on manufacturing, the country's exports of goods and services decreased to a smaller extent than the external demand (for more details, see Chapter V "External Sector"). The Lithuanian exports of goods and services, measured in chain-linked volumes, shrank by only 8.1% in the second quarter of 2020 compared to the fourth quarter of 2019. Meanwhile, imports of goods and services in the respective period suffered a much sharper decline (of 12.7%) due to the willingness of the country's undertakings to streamline their existing inventories of manufactured and other goods as well as reduced investment. Such evolution in exports and imports of goods and services led to a highly positive contribution to GDP dynamics from net exports in the period under review (see Chart 8). However, this phenomenon will be temporary, as net exports should return to the levels observed before the pandemic, when businesses finalise inventory optimisation, recovery of the key trade partners begins and uncertainty over the future path of the pandemic starts to wane. Exports of goods and services are now projected to decrease by an annual rate of 3.8% in

2020, while imports of goods and services should drop by 6.1%. In 2021, however, exports and imports are expected to increase by 6.9% and 8.4% respectively.

BOX 2

INVESTMENT GEARED TOWARDS LONG-TERM ECONOMIC WELFARE

Public investment is an important government instrument that helps reduce fluctuations in economic cycles during the short term, as well as promotes the long-term growth of the country's economy and welfare. However, existing investment objectives can only be achieved by implementing well-targeted investment projects. Following the Lithuanian government's approval of the €6.3 billion investment plan to be implemented by the end of 2021, and given the historic opportunity to apply for almost €18 billion over the next seven years from the Multiannual Financial Framework and **Next Generation EU**, it is essential to ensure efficient use of these funds.

The choice of investment instruments should be based on their usefulness, while critically assessing and revising investment needs. The usefulness of investment projects must be assessed on the basis of a cost-benefit analysis, which is currently very rarely used in Lithuania and is usually replaced by an impact assessment.¹⁵ A cost-benefit analysis could show the real cost of investments: their benefits for society and budget requirements for sustaining these investments in the future, which would contribute to a more efficient use of limited public resources. The previously defined investment instruments should also be subject to a critical revision. The major part of investments amounting to more than €4 billion had already been planned before the COVID-19 shock. However, the pandemic has also opened up new opportunities, including business intentions to shorten supply chains and relocate certain activities to Europe. The change in the economic situation may also have reduced benefits of the planned investments, thus it may be appropriate to abandon some projects and replace them with more viable ones.

When allocating investment, the state should prioritise areas under its direct responsibility. This includes public order, education, health care, transport infrastructure, urban lighting, public spaces and other public sector areas. The private sector plays only a minor role in the fields attributed to the government functions and public goods. Therefore, it can hardly be expected that the state would be able to maintain sufficient high-quality performance of its functions without the necessary funding.

In light of the aforementioned investment selection principles, recommendations by international institutions¹⁶ and challenges facing the country, the following investment priorities can be identified.

Adapting to COVID-19 induced changes. This investment type should cover challenges related to health care, education and remote work. In terms of health care, it is important to modernise the system by streamlining processes, improve the quality of the services provided, ensure the adequate and timely supply of the necessary medical resources and implement technological solutions to ensure the system's sustainability and safety. The latter need has been reinforced by recent problems encountered after Lithuania's e-health servers had been flooded. Dependence on foreign medical supplies could be addressed by increasing supply on the domestic market through, for example, investment instruments targeted at companies capable of producing the required products. As regards education, qualitative indicators have long been signalling the need to reform the education system, while the COVID-19 outbreak has magnified the existing problems. With the increased demand for distance learning, investment in modernisation of schools and adaptation of the education system to this aim would not only improve the situation in the education system, but also facilitate the smooth organisation of the remote teaching process. With remote work also getting more popular and businesses moving to cyberspace, it is important to increase opportunities to work on a remote basis, digitise the economy and develop the required competencies, as only enhanced skills will allow making good use of emerging technical possibilities.

Addressing demographic and regional challenges. Lithuania's shrinking and ageing population (see Chart A) is posing a number of challenges – from a declining and ageing labour force to infrastructure

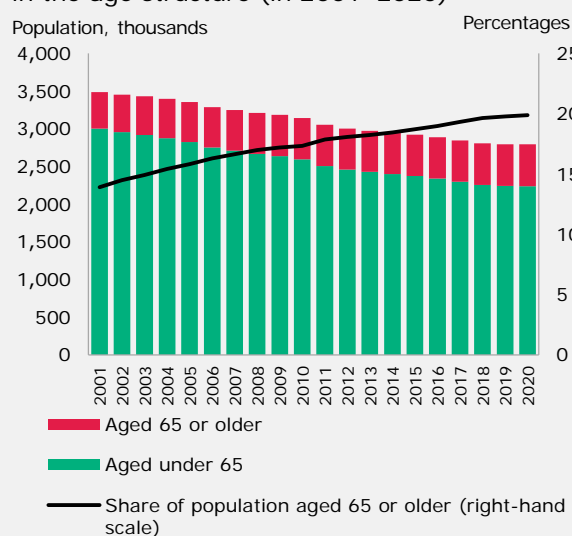
¹⁵ In an impact assessment some economic costs are treated as economic benefits.

¹⁶ IMF (2019, [online source](#)), EC (2020, [online source](#)), OECD (2019, [online source](#)).

unadapted to elderly people. It is thus becoming increasingly important to ensure physical and social infrastructure responding to the needs of the ageing population. Demographic changes also contribute to regional disparities in Lithuania, as the declining number of young and highly qualified people in peripheral regions¹⁷ implies reduced opportunities for economic development in these parts of the country, a widening gap in terms of living standards compared to the major cities, and structural unemployment. The shrinking labour force and the ageing population increase the need for lifelong learning, while the global pandemic has significantly affected the established working practices. It is therefore important to invest in the development of a unified lifelong learning system, distance learning opportunities, programmes focused on providing the necessary skills and competencies, which would effectively help the unemployed, those willing to reskill or elderly people to enter the labour market. Investment in the development of the network of transport services could also help address regional disparities.

Lithuania's population has been rapidly ageing.

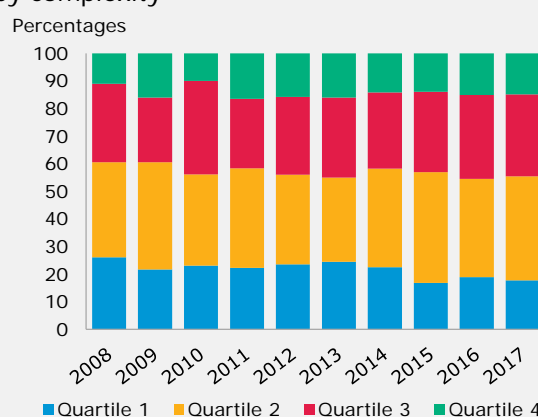
Chart A. Population developments and changes in the age structure (in 2001–2020)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Exports of low and medium complexity products are predominant in Lithuania, and the structure of exports is changing at a very slow pace.

Chart B. Lithuanian exports* broken down by complexity**



Sources: Statistics Lithuania, The Atlas of Economic Complexity and Bank of Lithuania calculations

* Of Lithuanian-origin goods, excluding mineral products.

** Products are broken down by complexity into 1 to 4 quartiles, where the 4th quartile indicates the share of exports of the most complex products.

Education system reform. Such a reform would make it possible to change the quality of human capital – one of the key economic drivers. Although education expenditure relative to GDP in Lithuania is higher than the EU average, qualitative education indicators show that the situation is still unsatisfactory.¹⁸ With the faltering optimisation of the school network, an increasing share of the education system expenditure is spent on maintenance, whereas the share of expenditure used for the performance of direct educational functions, including wages, has been declining. This makes it difficult to attract talent, which in turn inevitably undermines educational outcomes. In addition to increasing the economic efficiency of the education system, which has recently been widely discussed, it is equally important to improve the educational content and methods, which have so far received much less attention. The reform must also encompass higher education. Although the share of Lithuania's population that has completed higher education is above the EU average, according to the Global Competitiveness Report published by the World Economic Forum, however, Lithuania is lagging behind in terms of such indicators as skillset of graduates (ranking 82nd out of 141 countries) and ease of finding skilled employees (standing 124th).¹⁹ There is a need for an efficient consolidation of universities and a focus on qualitative results achieved by higher education institutions, rather than on merely quantity-based funding. The education reform should also

¹⁷ Peripheral regions refer to regions other than Vilnius, Kaunas and Klaipėda.

¹⁸ Programme for International Student Assessment, 2018, OECD ([online source](#)).

¹⁹ World Economic Forum, 2019. The Global Competitiveness Report 2019 ([online source](#)).

include the establishment and development of reskilling and training programmes in order to create an effective lifelong learning model, which is necessary in the context of the ageing population and changing technologies. As a result of digitisation and robotisation as well as transition to a climate-neutral economic model, the labour market will undergo transformation, some jobs will disappear, which makes it necessary to get ready for this by investing in training of new workers.

High technologies. Exports of low and medium complexity products are still predominant in Lithuania, whereas the share of exports of the most complex goods has remained largely unchanged over the last decade²⁰ (see Chart B). Although such specialisation has not yet put any significant limitations to Lithuania's convergence, this may become a major constraint on sustainable economic development on the back of increasing labour costs. Directing general government investment to the promotion of higher added-value production, development of high technologies (e.g. IT, biotechnologies, pharmaceuticals) and digitisation of the public sector (including introduction of electronic voting and modernisation of bureaucratic procedures) would help increase the value added of goods and services as well as enhance the skills of the labour force. This could in turn accelerate economic transformation that would contribute to further sustainable convergence of Lithuania. The development of high technologies would be supported by investment instruments for companies performing R&D and thinly capitalised firms creating new technologically advanced products, as well as the development of the 5G network and infrastructure for life sciences, while ensuring the possibility to implement commercialisation strategies.

Climate change. The development of green technologies could help Lithuania climb up the value chain ladder, enhance export competitiveness and contribute to further income convergence. Clean energy investment is essential in addressing global climate change challenges and achieving the common EU objectives²¹. This would also bring significant economic benefits, as returns on clean energy are three to eight times higher than initial investments²². Development of renewable energy use, modernisation of public transport infrastructure or that for alternative modes of transport (e.g. an electric vehicle network) and energy efficiency renovation projects for multi-apartment buildings would not only help address climate change challenges, but also contribute to economic modernisation. To this end, the EU is dedicated to devote particular attention and additional funding in the upcoming years. Therefore, it is worth steering Lithuanian incentives for business and science in this direction, as well as searching for climate-friendly solutions, which will be in high demand across the EU.

The Plan for the DNA of the Future Economy prepared by the Ministry of Finance of the Republic of Lithuania identifies the following investment priorities: human capital, digital economy and business, innovation and research, economic infrastructure as well as climate change and energy. These types of investment are broadly consistent and compatible with both the listed priority areas and the priorities of EU funds for Lithuania in 2021–2027.²³ However, with a view to ensuring economic transformation and efficient use of investment funds, of importance are not only investment areas, but their content as well. The selected investment instruments should be aimed at achieving a real impact on the economy. For example, reskilling or upskilling programmes have already been in place for some time, yet the desired results have still not been achieved. It may be pertinent to involve private or foreign consultants and experts in order to develop content-wise high-quality projects that would allow achieving the intended objectives with the allocated funds. There are also certain concerns as some investment instruments are described in the Plan for the DNA of the Future Economy in vague terms, without disclosing their substance, despite sizeable funds being earmarked in certain cases. In order to make efficient use of investment funds, it is also crucial to ensure an effective distribution of responsibilities, which is particularly relevant, for instance, for the reskilling and/or upskilling measure, as it falls under the responsibility of the Ministry of Education, Science and Sport (€18 million), the Ministry of the Economy and Innovation (€42 million) and the Ministry of Social Security and Labour (€5.9 million).

²⁰ Aleknevičiūtė, E. et al. (2020). The Challenges of Lithuania's Economic Convergence and Labour Market. Occasional Paper Series No 31, Bank of Lithuania.

²¹ Becoming a climate-neutral continent by 2050.

²² International Renewable Energy Agency, 2020. Global Renewables Outlook: Energy Transformation 2050 ([online source](#)).

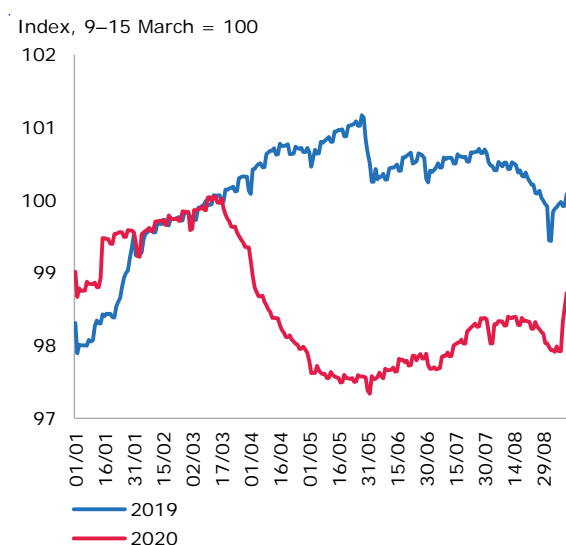
²³ A smarter, greener, more connected and more social Lithuania ([online source](#)).

IV. LABOUR MARKET

The pandemic led to a significant decline in employment, yet the economic stimulus measures helped prevent an even more severe decline in the period under review. According to the data made available by the State Social Insurance Fund (Sodra), the number of workers covered by state social insurance²⁴ started to fall at the end of March, but then broadly levelled off in early May. By that time, the number of workers decreased by approximately 2% (i.e. 35,000) compared to the pre-lockdown levels. However, the number of workers usually increases by approximately 1.5% (or 15,000) during this particular period due to seasonal effects, which implies that their number dropped by approximately 3% (i.e. 45,000) as a result of the pandemic. A larger decline in the number of workers was staved off by a possibility to retain employees in exchange for the government's wage subsidies as well as by other stimulus measures. Employers who received the subsidies committed to pay certain wages to such employees and retain their jobs for some time after the end of the lockdown. Undertakings engaged in accommodation and catering activities made very active use of the wage subsidy scheme in the period under review and, specifically, claimed subsidies for 55% of their workers in April 2020. The shares of such workers were also very high in household services and trade activities, comprising 26% and 21% respectively. In total, subsidies were claimed for 11% (i.e. 148,000) of workers. Early in June, the number of employees started to increase, driven not only by economic improvements, but also seasonal factors. In early September, however, the number of workers was still well below their year-earlier levels in terms of the bulk of activities. The most affected of them include accommodation and catering, business support services and transportation. The latter, in addition to the pandemic, has also been hit by the requirements of the EU Mobility Package.

The number of workers started to increase in June, yet remained well below the level observed in 2019.

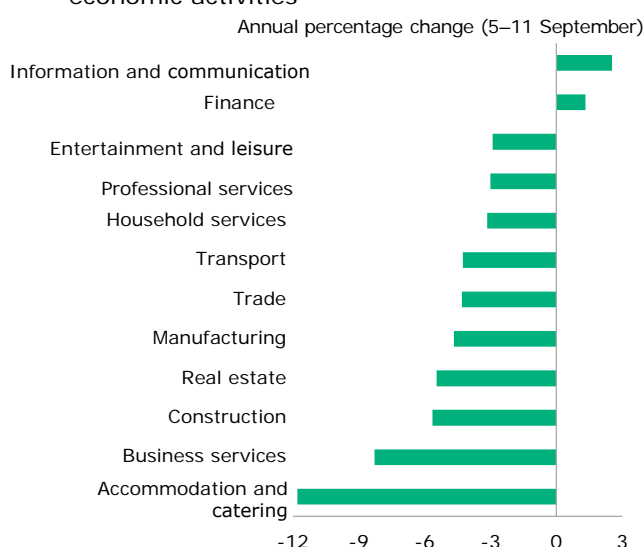
Chart 10. Number of workers



Sources: Sodra and Bank of Lithuania calculations.

The accommodation, catering and business services sectors suffered the biggest fallout from the pandemic.

Chart 11. Number of workers broken down by economic activities



Sources: Sodra and Bank of Lithuania calculations.

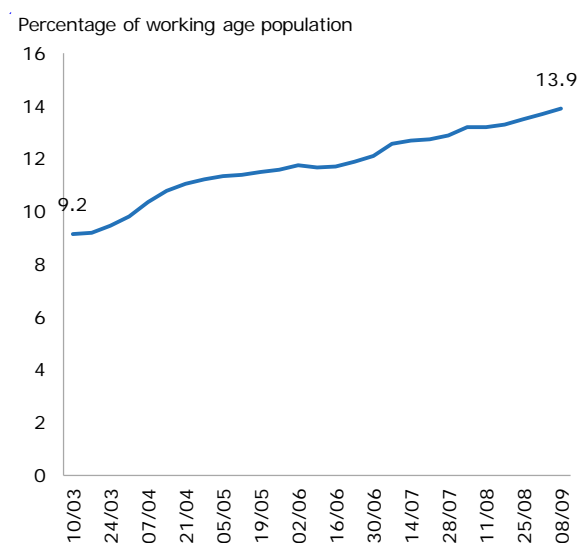
Unemployment in Lithuania grew at a substantially rapid pace. According to Statistics Lithuania, in April to June unemployment was, on average, 2 percentage points (i.e. 30,000) higher compared to the previous quarter, to reach the average of 8.6%. Data provided by the Employment Services under the Ministry of Social Security and Labour of the Republic of Lithuania has shown that registered unemployment continued its upward trajectory in July–August 2020. Nevertheless, the rise in unemployment was less substantial than it might have been thanks to the subsidies scheme as well as other economic

²⁴ Contrary to the number of jobs, the share of workers covered by state social insurance excludes workers on authorised leave as well as those on unpaid leave.

stimulus measures. Such unemployment developments were largely driven by job losses in the trade, accommodation and catering, transport and construction sectors. Even though the latter was not hit by numerous stringent restrictions, it suffered one of the largest falls in added value compared to other types of activity. The pandemic had a very adverse impact on youth unemployment rates, which soared nearly twofold over the quarter and reached approximately 20%. The latter implications were relatively strong, given that many young people work in the most affected sectors, e.g. tourism and catering. In late June, registered unemployment resumed its upward trend, which, however, was mainly caused by the rollout of jobseeker's allowances that prompted non-working residents to register with the Unemployment Services, the returnee emigrants and seasonal factors, rather than the worsening economic situation. The unemployment rate should rise somewhat more this year due to the economic deterioration in both Lithuania and foreign countries, and should turn to a gradual downward path next year.

Registered unemployment levelled off in June, although the rollout of jobseeker's allowances put it back on an upward course.

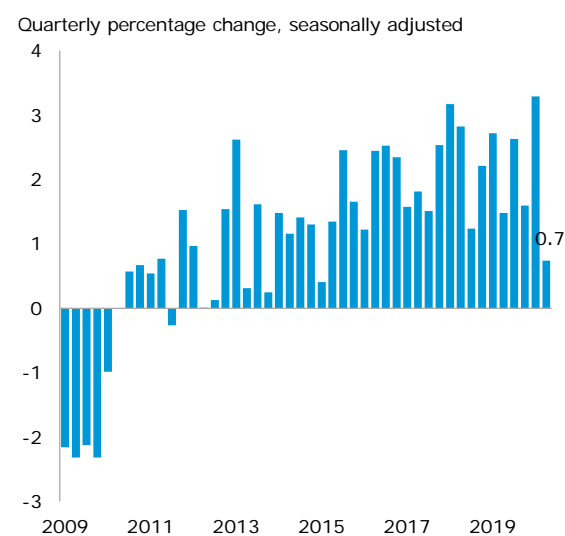
Chart 12. Registered unemployment



Source: Employment Services.

Wages continued to rise, albeit at a much slower pace than usual.

Chart 13. Wages adjusted for seasonal effects



Sources: Statistics Lithuania and Bank of Lithuania calculations.

The pandemic and preparations for the implementation of the EU Mobility Package had a significant effect on migration.

Certain changes in migration of foreign nationals could already been observed since January 2020, when the number of emigrating foreigners doubled. According to Sodra, the growth in the number of workers in the transport sector – the largest employer for immigrants – has slowed down, on the back of the ongoing preparations for the implementation of the EU Mobility Package. Nonetheless, the most substantial impact on migration came from the pandemic and related restrictions. During the lockdown period, both emigration and immigration rates of Lithuania's nationals declined. The migration balance, however, reached the highest value in the history of the data series. The trend of a more positive migration balance may continue to prevail in the short to medium term, given that the heightened uncertainty should make people reluctant to take major migration decisions. Another important aspect will be the fact that some Western European economies and labour markets have suffered much more severe fallout from the pandemic than Lithuania. Weaker incentives to emigrate will imply more jobless residents staying in the country, which may undermine the bargaining power of employees in wage negotiations.

The COVID-19 impact on wages has been quite limited. In January–February 2020, wages in Lithuania rose at a very rapid pace (9.2%) due to a minimum wage hike and increases in wages for public sector employees. However, according to Sodra, wages fell below the level observed during the lockdown period in March to May. Among other factors, the decline was driven by payment of minimum wages for subsidised workers instead of their regular wages. Moreover, some businesses might have made temporary cuts to top-ups or bonuses paid to their employees due to a huge surge in uncertainty over the economic outlook. In

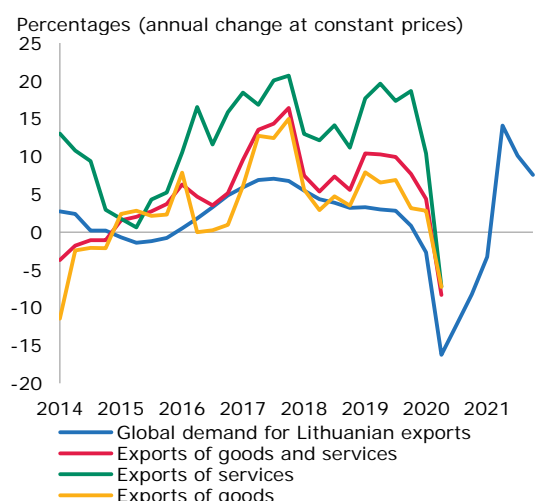
the period from March to May, wages in the accommodation and catering sectors fell by approximately 10% on a year-on-year basis. Meanwhile, the annual pace of wage growth in other activities, e.g. trade, industry and household services, decelerated to 2–4%. The only fields that remained broadly unscathed were the public sector and IT. Nonetheless, the data provided by Sodra shows a rebound to 9% in the annual wage growth observed in June 2020. The recovery might have been fuelled by the fact that the workers previously paid the minimum wage under the subsidies scheme got back to their regular wages already in June. The rebound might have also been triggered by the restoration of the temporary reduced top-ups and bonuses. However, this recovery may not necessarily be sustainable, provided that tremendous uncertainty over the economic outlook will make employers cautious in terms of wage rises. Therefore, wages should increase by a rather significant margin (roughly 6–7%) in 2020, whereas in the year to come, the pace of wage growth will considerably decelerate, owing to the continued uncertainty clouding the economic development in Lithuania and the rest of the world.

V. EXTERNAL SECTOR

In the first half of 2020, Lithuania's foreign trade shrunk due to the shock caused by COVID-19 and the related economic constraints. National accounts show that during this period total exports of goods and services in real terms fell by 10.4% year-on-year, whereas imports declined by 11.6%. Based on the nominal data on foreign trade, its largest drop was recorded in April and May, which coincided with the most severe lockdown restrictions. During these months, the value of total nominal exports of Lithuanian goods decreased by 8.4%. The impact of a strong supply and demand shock was extensive and affected all groups of goods. A fall in demand for transport services and travel had a negative impact on demand for fuel and, consequently, the export volumes of Lithuanian mineral products. This group of goods was the largest contributor to the decrease in Lithuanian exports of goods. It is important to mention that the substantial adverse effects on this group were not only induced by the diminished volumes of exported goods, but also due to a sharp drop in prices. The nominal value of exported goods, excluding mineral products, in the first half of 2020 was 2.4% lower on a year-on-year basis. Although future foreign trade development will depend on the spread of the virus, its slight improvement is currently being observed. Results recorded in June show that the sudden fall of both exports and imports has stopped, and Lithuania withstood the first COVID-19 shock better than majority of other countries. Despite the improving situation, foreign trade volumes are still smaller than they were last year.

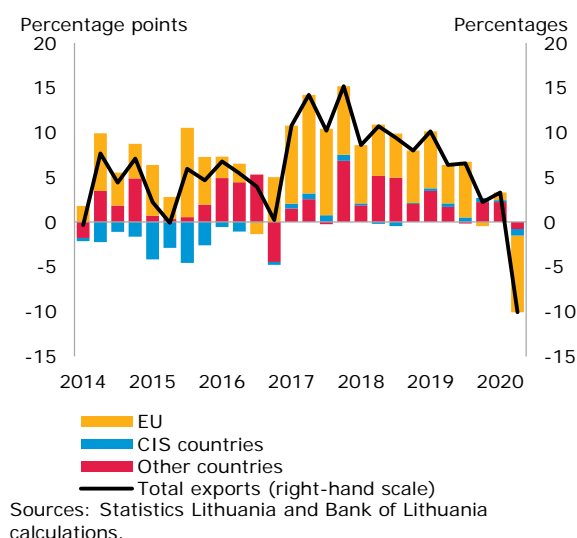
Demand for Lithuanian exports dropped in 2020 and is projected to recover only in 2021.

Chart 14. Annual growth of Lithuanian real exports and their foreign demand



In the first half of the year, export volumes of Lithuanian-origin goods decreased.

Chart 15. Growth factors of exports of Lithuanian-origin goods, excluding mineral products



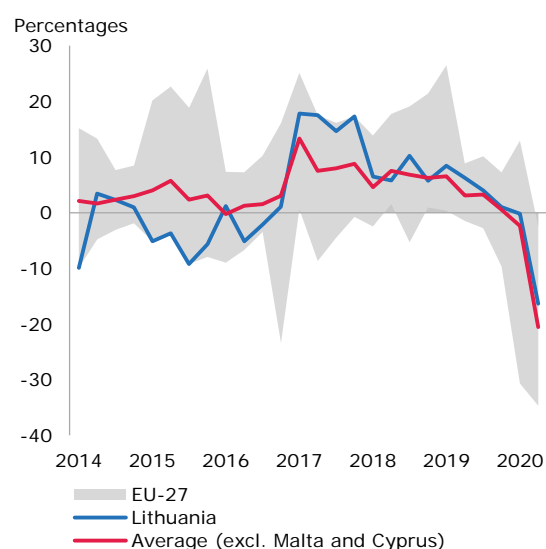
Exports of Lithuanian-origin goods –the key component of Lithuanian exports – was the culprit responsible for the largest share of the decrease in total exports of goods. In the first half of the year, export volumes of Lithuanian-origin goods shrunk by 12.3% year-on-year. The largest fall in exports of Lithuanian-origin goods, excluding mineral products, was recorded in plastics and its articles, electric machinery and equipment, furniture, fertilisers as well as wood and its articles. Exports of tobacco and its products, reagents and liquid crystals, optical units, lasers, medical devices and instruments were the most resilient to the shock of COVID-19 and all restraints put in place to fight it. Faced with COVID 19, Lithuania managed to put forward higher added-value goods that were essential for research and control of the virus, which helped to outweigh the huge drop in exports of mineral products, intermediate consumption and consumer goods. Other groups of Lithuanian exports were relatively less affected by interferences to international production chains thanks to their low complexity. In addition to that, Lithuanian exporters' trade with countries that were the most affected by the pandemic (e.g. Italy and Spain) is comparatively less active,

thus the total imports demand of the country's trade partners has so far decreased to a relatively lesser extent. The negative effect on exports was also limited by Lithuania's foreign trade diversification by markets.

In 2020, for the first time since the global financial crisis, Lithuanian exports of services recorded a fall. Although the country has a surplus balance of trade in services, which is larger than during the same period last year, the reason behind such trends is that imports of services dropped more than exports. Among all foreign trade services, the transport, travel and tourism sectors suffered the largest fallout from COVID-19. Exports of transport services were also negatively affected by the approval of the Mobility Package, the main provisions of which will come into force in January 2022. Based on the latest sales revenue data provided by service companies, income of transport and travel agencies as well as tourism companies continues on a downward path in the second half of the year. Both the share of tourists travelling by plane and the number of flights have declined. On the other hand, demand for services that became irreplaceable during the quarantine has increased. Exports of companies operating in the information and communications sector have boosted along with their income.

Lithuanian export volumes shrank to a relatively lesser extent compared to other EU countries.

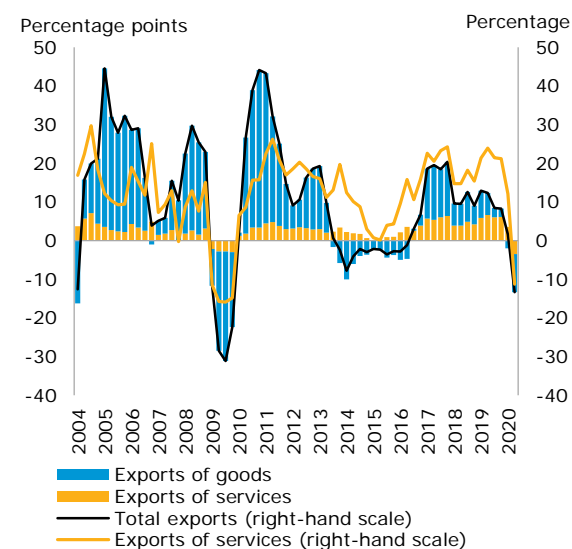
Chart 16. Dynamics of nominal exports of goods (annual growth, excluding Cyprus and Malta)



Sources: Eurostat and Bank of Lithuania calculations.

Lithuanian exports of services saw the steepest fall since the global financial crisis.

Chart 17. Impact of exports of Lithuanian-origin goods and services on the total export growth



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Lithuania's foreign trade has managed to withstand the shock of COVID-19, yet it will take time to return to the 2019 levels. The world's shrinking trade volumes will have an overall effect on the global economy, and Lithuania will not be an exception. Undergoing structural economic changes will also stifle the economic growth of countries that have been successfully fighting the pandemic. For example, Germany, which is one of Lithuania's most important trade partners, due to a weaker demand for vehicles is facing lower production volumes and, in turn, a lower demand for imports of raw materials. Undoubtedly, the slowdown in Germany's vehicle industry is also related to structural changes and reorientation towards electric vehicle production. However, these difficulties contribute to the assessment of future prospects as well. The lingering uncertainty is set to diminish corporate investment appetite, which will also have certain implications on foreign trade. Lithuania is still recording a drop in imports of investment and intermediate consumption goods. 2020 projections point to a 10.5% fall in foreign demand from Lithuania's trade partners and a 13.5% shrink in demand from the euro area partners. Lithuania's foreign demand is currently expected to reach the 2019 levels only in 2022. In line with that, the country's real exports will see a 3.8% fall, whereas imports should decrease by 6.1%. The situation currently faced by Lithuanian exporters may get even worse due to the numbers of COVID-19 cases going back to the levels recorded in March, which might in turn be

followed by restrictions on economic activities, as well as due to the unrest in Belarus – an important re-exports partner of Lithuania (for more details on the relations between Lithuania and Belarus, see Box 3).

BOX 3

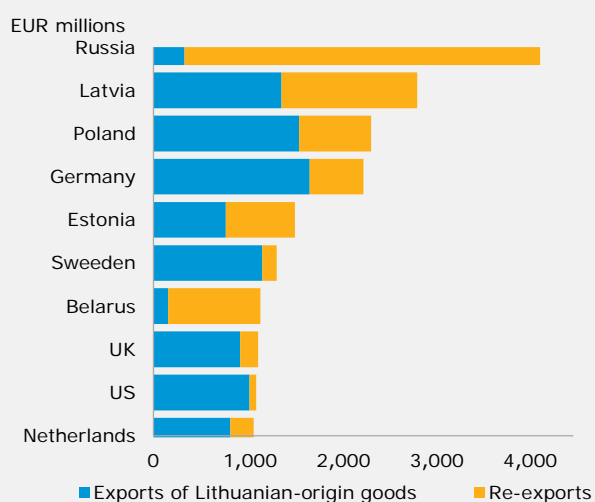
ECONOMIC TIES BETWEEN LITHUANIA AND BELARUS

Trade in services is one of the strongest ties between Lithuania and Belarus. The largest volume of imports of services to Lithuania comes from Belarus – in 2019, it amounted to €0.68 billion (10% of total imports of services). During the same period, Lithuania exported services worth €0.72 billion to Belarus (6% of total imports of services) and, as per this indicator, the neighbouring country was surpassed only by Germany, Russia and France. As transport services account for the bulk of bilateral trade, they are most likely to be affected by the Belarusian economic problems. Some of the largest exporters in the transport sector are Lietuvos Geležinkeliai (Lithuanian Railways) and Klaipėdos Uostas (Port of Klaipėda), thus Belarus uses services of these companies to transport goods. In 2019, almost 12% of rail freight loaded in Lithuania was unloaded in Belarus, and as much as 75% of total rail freight unloaded in Lithuania was loaded in Belarus. In the cargo turnover of the Port of Klaipėda, cargo from Belarus comprises up to a third of its total cargo. Belarus is also important to Lithuania in terms of the tourism sector. Most of the tourists that came to Lithuania in 2019 with an overnight stay were from Belarus. Belarusians are keen on Lithuania not only for tourism, but also for shopping – their spending share here is some of the largest. Last year, visitors from Belarus spent more than €130 million in Lithuania, which comprises 14% of its total tourist spending.

As regards trade in goods, Lithuania for Belarus is a transit country through which machinery, equipment and vehicles are transferred from the West. Although in 2019 Lithuania's exports of goods to Belarus increased by only 6.4% (to €1.1 billion), 86% of them were re-exports. It was mostly investment goods: machinery and equipment, automatic data-processing machines and boilers (20%). Land vehicles are also largely re-exported to Belarus – they amounted to around 11% of all exports in 2019. Although the share that re-exports take in total trade with Belarus points to the importance of Lithuania as a transit country in Belarus' trade with the West, they do not generate much added value for Lithuania's economy. Due to this, a drop in exports from Lithuania to Belarus would not have a significant direct effect to Lithuania's GDP. Still, some indicators will show significant changes. With the Belarusian economy losing momentum, demand for foreign goods, which often reach Belarus through Lithuania, is set to decrease as well. This will in turn affect exports of services and re-exports of goods in Lithuania's foreign trade statistics.

Belarus is one of the key export directions for Lithuania's goods.

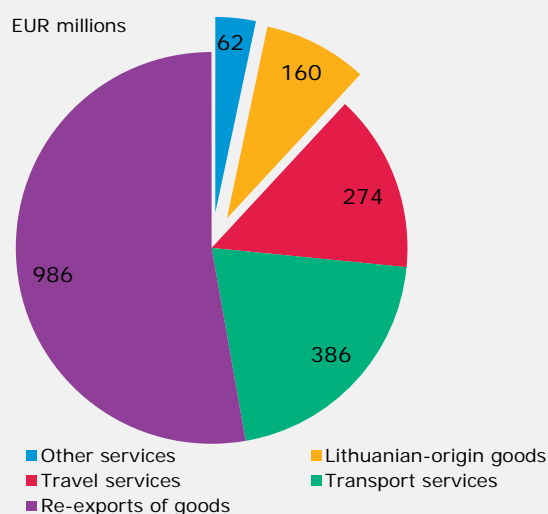
Chart A. Main directions of exports of goods in 2019



Sources: Statistics Lithuania and Bank of Lithuania calculations.

In terms of trade of goods, Lithuania is a transit country for Belarus.

Chart B. Structure of Lithuania's exports to Belarus in 2019



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

Although some companies may be negatively affected by the deteriorating relations between Lithuania and Belarus, a decline in bilateral investments would not have a significant impact on Lithuania's economy. Although a number of large Lithuanian companies have branches in Belarus (e.g. Kauno Grūdai, Audimas, Vakarų Medienos Grupė), in 2011–2017 the turnover of Lithuanian companies operating in Belarus amounted only to an average of 5% of the total turnover of Lithuanian companies carrying out their activities abroad (€208 million per year). Based on Lithuania's cumulative FDI in 2019, Belarus was the 7th amongst all foreign countries, with 3.4% of Lithuania's total FDI directed to this country. The largest investments were related to wholesale and retail trade as well as vehicle and motorcycle repair – in 2019, this activity was attributed to more than half of Lithuania's FDI accumulated in Belarus. Last year, foreign enterprises invested €18.2 billion in Lithuania, with less than 1% of these investments coming from Belarus. In 2019, the neighbouring country, which mostly invested in manufacturing as well as acquisition and sale of RE, ranked 18th in terms of the cumulative FDI in Lithuania. These numbers show that, although part of Lithuania's FDI has gone to Belarus, deteriorating bilateral relations would not have a devastating impact on Lithuania's investors.

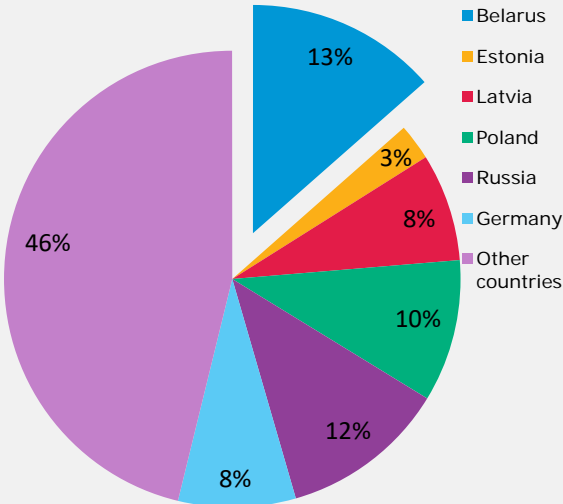
Immigrants from Belarus comprise one-fifth of foreigners residing in Lithuania, yet this year's immigration trends may possibly be limited by the restrictions put in place due to the COVID-19 pandemic and changes in the transport sector caused by the EU Mobility Package. The number of immigrants from Belarus Lithuania is further growing, having doubled since 2016. Most often, such migrants found work in the construction and transport sectors. The development of the transport sector in recent years resulted in new jobs and staff shortages, thus the immigration rates from the neighbouring country that offers lower wages have increased. This trend is now changing due to the implementation of the EC's Mobility Package²⁵ which poses quite a few challenges to the development of the Lithuanian transport sector. Migration flows from the country with three times more residents compared to Lithuania were also limited by the closed borders between Lithuania and Belarus after the introduction of lockdown measures. Although movement between countries was later renewed, foreigners were once again forbidden to enter Lithuania from Belarus in early September. Having removed travel restrictions, immigration to Lithuania during the second half of the year could also be motivated by political reasons in addition to the economic ones: with the deteriorating crisis in Belarus, its residents may seek asylum in Lithuania. In 2020, COVID-19 containment measures have been affecting not only immigration, but also tourist flows which may not recover due to the current political and economic crisis in Belarus.

Declining Belarus' orders for Lithuanian goods and services may cost 0.3% of Lithuania's GDP in 2020–2021. Such impact is estimated by calculations with an assumption that not all exports to Belarus would cease to exist. It is assumed that due to the already made orders, signed agreements and current prices of goods and services, only part of exports to Belarus would be lost. If the country loses 25% of exports of services and Lithuanian-origin goods as well as 25% of re-exports of goods (around 1.2% of Lithuania's total exports), the real GDP growth will shrink by around 0.1 percentage point in 2020 and 0.2 percentage point in 2021. The analysis includes a shock due to which the mentioned exports would decrease in the fourth quarter of this year.

²⁵ The EU Mobility Package is a collection of 3 initiatives concerning governance of commercial road transport in the EU. It represents the biggest change to the EU road transport rules, covering many aspects of the industry's activities ([online source](#)).

Belarusian tourists are some of the top spenders in Lithuania.

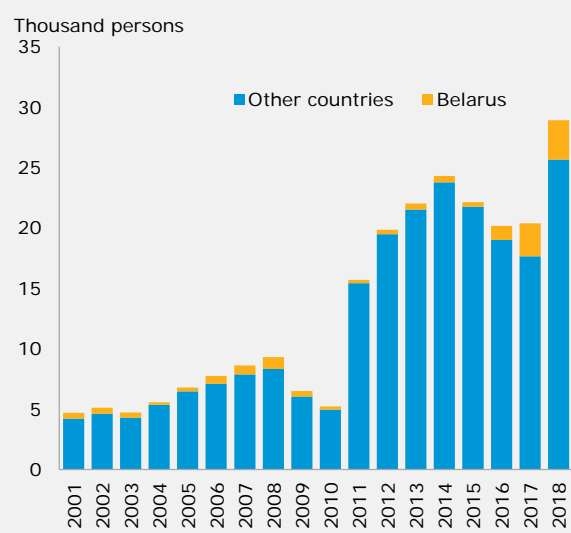
Chart C. Tourist spending in Lithuania by country in 2019



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Due to the growing staff shortages, immigration from the eastern neighbours, including Belarus, has been increasing.

Chart D. Immigrants to Lithuania from Belarus and the rest of the world



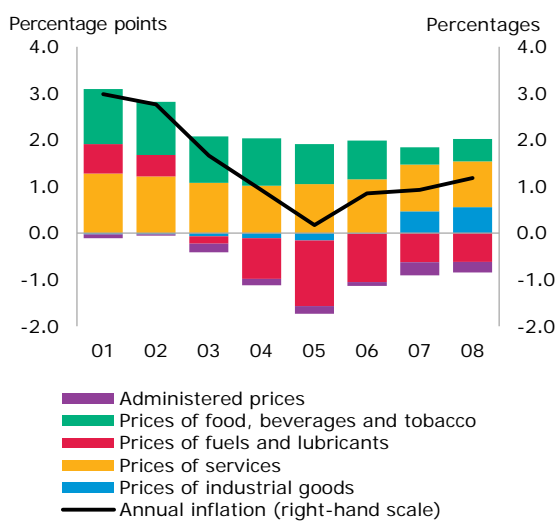
Sources: Statistics Lithuania and Bank of Lithuania calculations.

VI. PRICES

Price developments have also not been spared by the COVID-19 pandemic. From January to August 2020, the annual inflation rate in Lithuania stood at 1.4% and was lower than the 2019 average, when it reached 2.2%. A drop in inflation rates was mostly caused by falling oil prices on the back of weakening global economic activity, a decline in demand for goods and services and an excess supply of oil, which was the result of both lower demand and an unsuccessful agreement to cut oil output. As the rest of the world, Lithuania saw a drop in food commodity prices as well, since food prices started increasing at a slower pace. During the last few months, some price changes related to the country's internal development have also been observed – the growth in prices of services has been slightly losing momentum. The implications of lower oil prices and a slump in economic activity should continue to be felt during the remaining months of the year, with the average annual inflation projected to stand at 1% in 2020. Lithuania's inflation rate will slightly grow in 2021, yet is set to remain low at 1.2% (see Chart 19).

A decrease in Lithuania's inflation rate has mostly been driven by lower fuel prices.

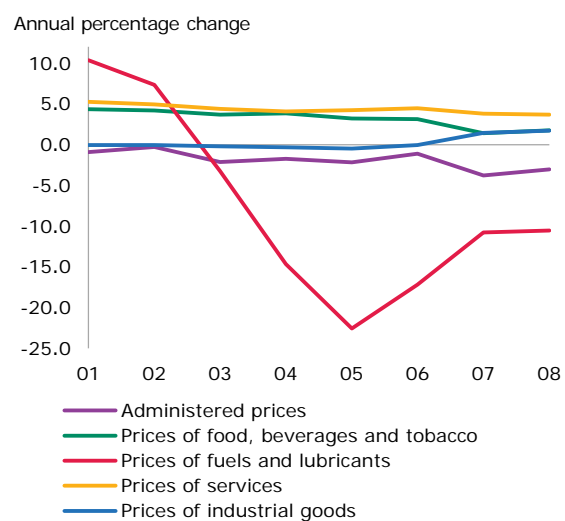
Chart 18. HICP inflation and its components in 2020



Sources: Statistics Lithuania and Bank of Lithuania calculations.

The sharpest drop has been observed in fuel prices.

Chart 19. Price developments by product groups in 2020



Sources: Statistics Lithuania and Bank of Lithuania calculations.

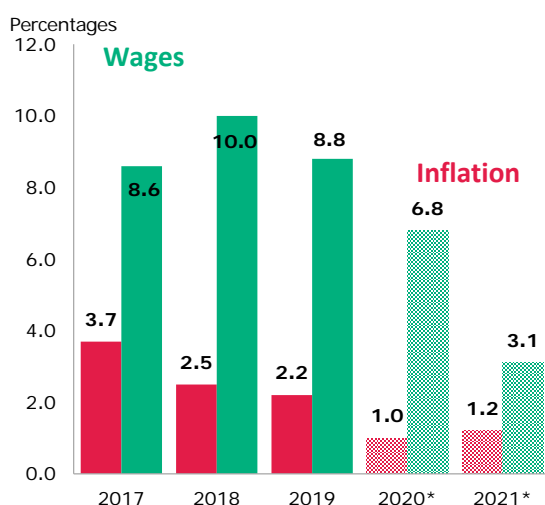
The growth in prices of services has been supported by demand accumulated during the lockdown and some containment measures that have been boosting the costs, yet the price rise has already slowed down. This can be attributed to the slump in prices of services in the sectors that have been heavily affected by the pandemic – during July and August, prices of flights, accommodation and tourism services suffered a sharp drop. However, prices of other services that saw a significant rise in demand with the easing of lockdown measures are still increasing at a rapid rate, including medical, hairdressing and beauty care services. One of the contributors to the growth of such prices, e.g. of catering services, may be the containment measures that still remain in place and tend to exert an upward pressure on the costs. For example, additional costs for disinfectants, single-use masks or gloves are all included in the prices of provided services. However, further price increases will largely depend on projected wage dynamics, since wages in the services sector comprise a larger share of costs than in the industry sector. This year's slower projected wage growth (6.8%) should ease the pressure on prices of services in the future. Projections show that in 2020, the average annual growth in prices of services will slow down to 4%, while in 2021 it should stand slightly above 2%.

With a decrease in food commodity prices, the growth of food prices has also been losing momentum, and this trend is projected to continue in the near future. Protectionist actions of some

countries, taken by imposing export quotas²⁶, posed a threat of an increase in global food commodity prices, while another concern was the shortage of seasonal workers for fruit and vegetable harvesting, as a result of the lockdown and closed borders. However, provided that there will be no unexpected disturbances, food commodity prices should not be significantly affected. The waning growth of food prices was mostly determined by the weakening rise in meat prices and lower vegetable prices (see Chart 20). Such trends are supported by both the fading effects of the African swine fever that swept through Asia last year and a better yield, which during the last few months allowed customers to purchase vegetables at lower prices (on average by 8%) compared to 2019. A record-breaking yield of grains recorded this year should also ensure a slower growth in prices of bread and other grain products.

In 2020, inflation rates are projected to fall by more than half compared to 2019.

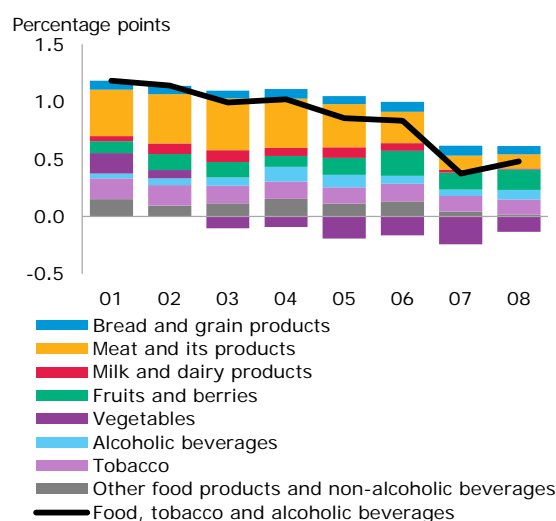
Chart 20. Wages, inflation and projections



Sources: Statistics Lithuania.
* Bank of Lithuania projections.

The rise in food prices is affected by slower growth of meat prices and cheaper vegetables.

Chart 21. Impact of prices of food, tobacco and beverages on the annual headline inflation in 2020



Sources: Statistics Lithuania and Bank of Lithuania calculations.

A drop in oil prices and changes in administered prices have put a downward pressure on energy prices. The means to fight the pandemic employed in March significantly reduced global economic activity, which in turn resulted in a diminished worldwide demand for oil. Although it significantly affected oil prices, they were hit even harder when the OPEC+ countries failed to reach an agreement on oil production cuts. This resulted in a cut of oil prices by more than half. With oil prices plummeting, a significant decrease was also recorded in prices of related products: fuels and lubricants were almost one-fifth cheaper in the second quarter of 2020 on a year-on-year basis. Although the OPEC+ countries' agreement on cutting oil output was finally reached in May and helped to raise oil prices, they are still around one-third cheaper compared to the beginning of the year. With the world still fighting the pandemic, oil prices during the rest of 2020 are expected to remain at similar levels as in September, and this will continue to put a downward pressure on inflation. Since July, lower electricity and natural gas prices have also been contributing to the reduction of inflation – since this particular month, electricity prices dropped by 8%, while natural gas prices fell, on average, by 18%.

²⁶ Russia and Kazakhstan – for grain, Vietnam – for rice (more information is available [here](#)).

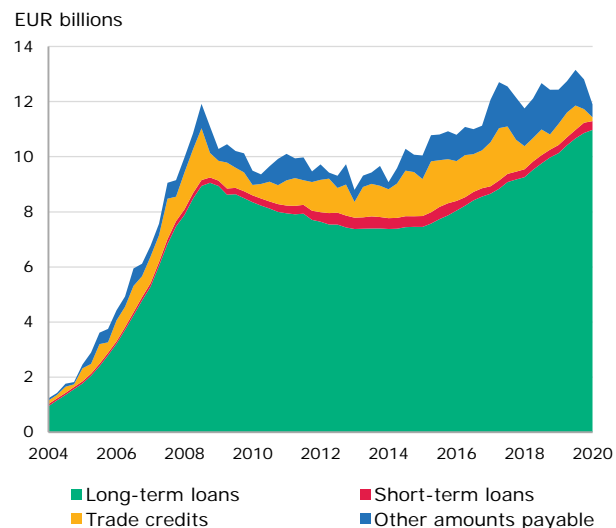
VII. FINANCING OF THE ECONOMY

With Lithuania currently facing the first economic downturn since the global financial crisis of 2008, the financing of households has shrunk. Although data for the second quarter is not yet available, according to the latest calculations of the Bank of Lithuania, in the first half of 2020, liabilities of households shrunk by 7.1% to €11.9 billion (a year-on-year decrease of 4.3%). The largest contributor to the decline in household financing was a significant drop in trade credits and other entitlements for residents granted mostly by NFCs – within a quarter, they decreased by 71.8% and 56.6% respectively. The reducing household debt for goods and services as well as utility and other taxes was a sign that despite being in a stable financial situation, households were cautious in assessing future perspectives and inclined to reduce consumption expenditure and debts. Financial institutions, on the other hand, increased household financing – in the first quarter of 2020, their loans rose by 0.5%.

Financial institutions did not cut household financing in the second quarter of 2020. The latest data shows that the household loan portfolio maintained its rapid growth due to lower loan amortisation in the moratorium period and recovering lending flows after a significant slow-down observed during the quarantine. In contrast to the corporate loan portfolio, the household loan portfolio saw a year-on-year increase of 6.9%. It was mostly influenced by housing loans – their portfolio's annual growth amounted to 8.8% due to lower loan amortisation during the moratorium period and recovering lending flows of new housing loans. The annual flow of housing loans shrank by 8.3%, however, after a one-third (33.7%) decrease in new housing loans recorded in May, the stabilisation of housing lending was once again seen in June. The value of housing loan renegotiations (excluding renegotiations under the moratorium conditions) remains similar to the levels observed in May and amounts to €16.5 million (0.2% of the total housing loan portfolio). In April, the portfolio of loans for consumption and other purposes was 1.1% smaller year-on-year, whereas the annual net flow of new consumer and other loans increased and was 12.8% higher on a year-on-year basis.

Household financing decreased due to a decline in trade credits and other short-term liabilities.

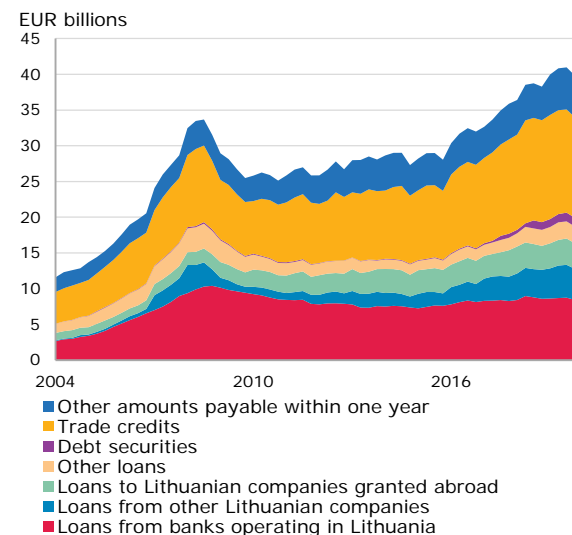
Chart 22. Structure of household liabilities



Source: Bank of Lithuania.

Financing of NFCs continued to grow despite banks reducing corporate financing.

Chart 23. Structure of NFC liabilities



Source: Bank of Lithuania.

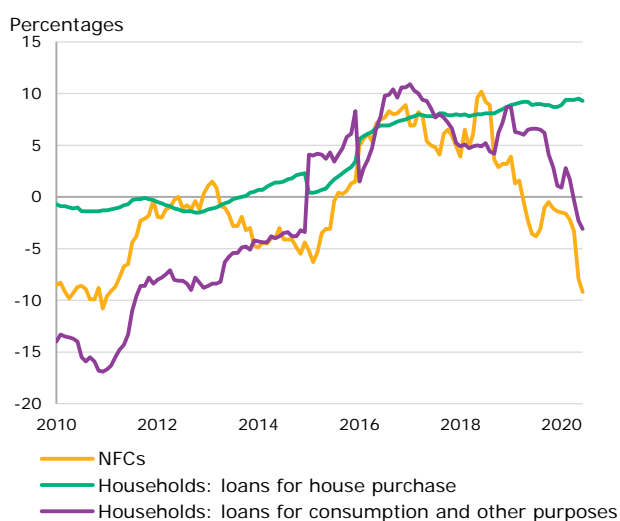
The financing of NFCs increased in the first quarter of 2020. During the reporting period, financial liabilities of NFCs grew by 4.5% (to €41.8 billion) and were 4.1% higher year-on-year. In contrast to households, NFCs enhanced the size of trade credits and other amounts payable: trade credits of NFCs increased by 7.0% (to €15.0 billion) during the period under review and were 3.2% higher on a year-on-year basis. Other NFC amounts payable grew by 3.8% to €6.2 billion (a year-on-year increase of 7.1%). Loans held by NFCs (granted by other NFCs and MFIs) increased by 2.9% in the first quarter of 2020 – this was caused by a 13.5% rise in inter-NFC lending. In the first quarter of 2020, MFI lending to NFCs decreased –

the total value of their loans dropped by 0.3% quarter-on-quarter and was 2.5% smaller than a year ago. The analysis of NFC liabilities in terms of their duration shows that in the first quarter of 2020, the share of short-term liabilities (up to a year) grew by 2.4 percentage points to a total of 64.0%. The rising share of short-term liabilities poses a risk that, in case reimbursements between NFCs are disrupted due to the economic downturn (especially if it becomes more severe), such corporations would not be able to meet their financial obligations. The data provided by Statistics Lithuania shows that in mid-2020, a number of NFCs have faced the issue of delayed customer payments.²⁷

The latest MFI data shows that MFI lending to Lithuania's NFCs continued to decrease in the second quarter of the year. In June 2020, the portfolio of loans to NFCs was 9.2% smaller year-on-year. Although the loan portfolio's amortisation was slower for some companies due to the announced moratorium, the total portfolio of loans to NFCs decelerated on the back of a notably reduced flow of new loans and the structure of the corporate loan portfolio (when the quarantine was first introduced, one-fifth of the portfolio of loans to NFCs was comprised of loans granted for up to 2.5 years, whereas during the lockdown, debtors were more inclined to postpone payments or renegotiate the conditions of longer-term loans). The annual flow of loans to NFCs has shrunk by one-third (32.7%) over a year. The flow of renegotiated corporate loans, excluding those renegotiated under the moratorium conditions, comprised €344.8 million (2.6 times more than the annual flow of renegotiations in 2019). However, a decrease in the credit flow to companies was partly offset by state-guaranteed financial instruments provided during the COVID-19 crisis (€336 million). It is quite likely that credit availability in Lithuania's financial institutions is now limited due to the deteriorating economic outlook, and this is in turn encouraging NFCs to seek alternative funding sources. This would largely explain an increase in peer-to-peer lending between companies by using intercompany loans or trade credits.

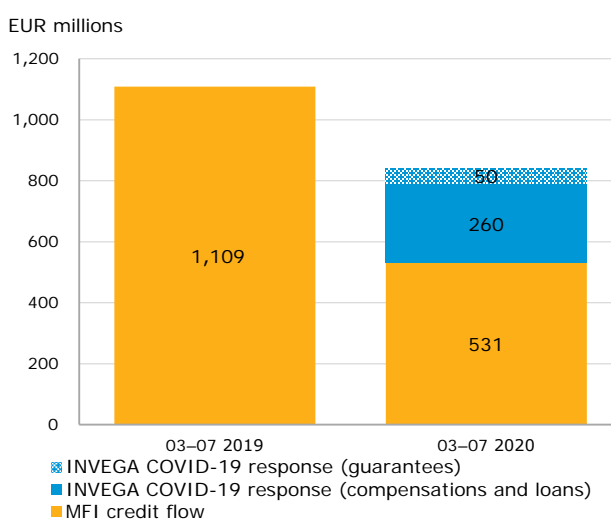
MFIs increased only the housing loan portfolio, while corporate financing was cut.

Chart 24. Annual growth of the portfolio of MFI loans issued to NFCs and households



State-guaranteed financial instruments significantly increased the volume of lending to NFCs.

Chart 25. Comparison of credit flows to NFCs



²⁷ In July 2020, 20.0% of construction companies indicated that in the past 3 months a number of customers delaying their payments had increased. For comparison: in 2019, the share of construction companies that reported late payments amounted to an average of 13.2%.

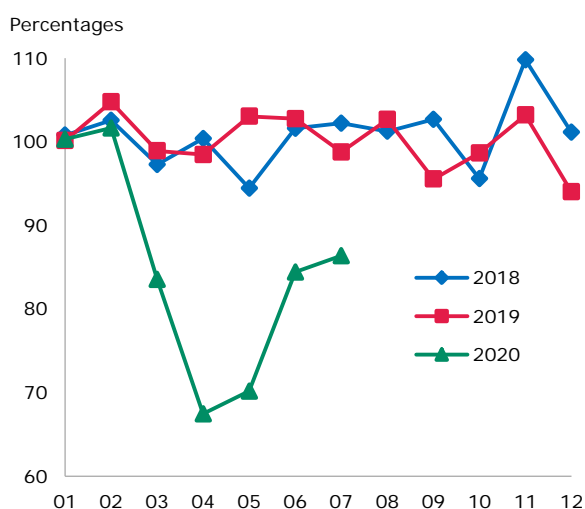
VIII. GENERAL GOVERNMENT FINANCE

According to the Ministry of Finance of the Republic of Lithuania, the state budget revenue fell short of the target by 13.9% in January–August 2020, and this was mostly determined by tax deferrals. The data of the State Tax Inspectorate shows that the largest revenue shortfall was recorded in April, with just 67.5% of target revenue collected (see Chart 26). Even though revenue collection came in below target for all major taxes, the overall shortfall was mostly the result of below-target revenue from consumption taxes and, in particular, from the value-added tax, which in January–August generated 19% less revenue than previously planned. With COVID-19 affected companies recovering after the lockdown and their turnovers bouncing back to the last year's levels, revenue collection remained short of target due to tax deferrals, as businesses in August continued to tap the possibility to defer tax payments amidst the emergency situation. As a result, revenue from the profit tax missed the target by 12%, from excise duties – by 4.6%, and from personal income tax – by 7.2% between January and August.

The general government balance deteriorated in the first half of 2020. Even though the data for the second quarter is not yet available, the first-quarter statistics have already made it evident that the general government expenditure outpaced revenue in terms of year-on-year growth rates by 15% and 6.3% respectively. The bulk of this increase is attributed to a 23% surge in social welfare benefits (see Chart 27). During the first months of the year, this growth was mainly driven by increases in pensions and child benefits. However, the introduction of the lockdown in mid-March led to a rise in unemployment and sickness benefits paid for parents who had to stay at home with their children. Revenue collection turned to the worse in the second quarter amid economic deterioration and tax deferrals, whereas the containment measures adopted by the authorities in response to the pandemic led to a rise in general government expenditure, which was also driven by the amendments passed in tandem with the budget bill, e.g. increases in child benefits or one-off payments to pensioners.

General government revenue lags well behind its target.

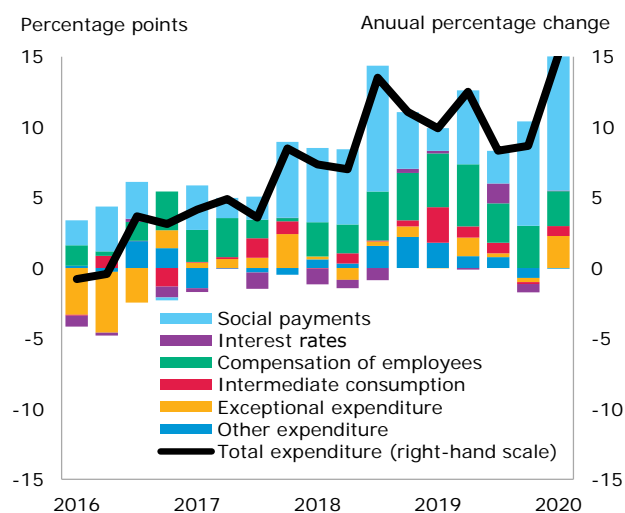
Chart 26. Ratio between actual state budget revenue administered by the State Tax Inspectorate and the revenue target



Source: State Tax Inspectorate.

The growth of general government expenditure gained speed in the first quarter of the year.

Chart 27. Contributions to general government expenditure



Sources: Statistics Lithuania and Bank of Lithuania calculations.

The implementation of the Economic Stimulus and Coronavirus Mitigation Action Plan proposed by the Lithuanian government will lead to a substantial deterioration in the financial position of the general government sector. The Plan²⁸ provides for €6.3 billion (13.1% of the country's GDP) for economic

²⁸ Adopted on 16 March and last revised on 20 June 2020.

stimulation, including both additional direct financing (investment, loans, compensations, subsidies and payments) and other measures (e.g. increased guarantee limits, accelerated implementation of investment schemes and allocation of budget appropriations, redistribution of investment funds and debt deferrals). Out of €4.9 billion (10.2% of the GDP) in extra direct financing alone, the measures that have no direct impact on the general government balance amount to an estimated €1 billion (2.2% of GDP). By 10 August, the authorities used up nearly one-fifth – 18.5% (€909 million) – of additional €4.9 billion earmarked for measures in the economic stimulus plan. It should be noted that, as assessed by the EC, no euro area country currently meets the Maastricht government deficit target.²⁹ Should the implementation of the Plan for the DNA of the Future Economy take longer than the envisaged one and a half years, extra investment that will be necessary to finalise the projects in progress may trigger further growth in financial liabilities of the general government sector.

The general government debt-to-GDP ratio is set to increase substantially as a result of additional borrowing undertaken to support household income, maintain jobs and ensure business liquidity.

Even though Lithuania's general government debt was among the smallest in the euro area early in the year, the country's debt-to-GDP ratio will reach a historical high in 2020. Should the debt maintain a similar growth pace in the upcoming year, e.g. due to a prolonged period of slow economic growth and the need of additional fiscal stimulus, the debt-to-GDP ratio would come close to the Maastricht debt limit of 60% of GDP, and the very rapid growth of debt might raise doubts regarding the sustainability of Lithuania's debt in the financial markets. A higher debt burden implies less room for fiscal manoeuvre and less space for response to both long-term challenges and short- to mid-term issues as well as poses risks to financial stability.

²⁹ [The COVID-19 crisis and its implications for fiscal policies.](#)

ANNEX 1

SUSTAINABILITY OF GENERAL GOVERNMENT DEBT

Lithuania's general government deficit and debt are set to increase substantially this year as a result of economic deterioration caused by the COVID-19 pandemic and fiscal measures put in place in a bid to mitigate its impact. Given the prevailing uncertainty over the spread of the pandemic and its duration as well as the potential scale of fiscal response, the state of public finances in the upcoming years may also worsen to a greater extent than currently expected. All of this leads to higher risks to debt sustainability. Public debt can be regarded as sustainable when a country is able to meet its debt obligations and fulfil its responsibilities towards the public at any point of time without solvency or liquidity challenges.³⁰ One of the methods for analysing debt sustainability is an assessment of whether the debt-to-GDP ratio will stabilise during the forecasting horizon under the baseline (the most likely) scenario of macroeconomic development as well as under various risk scenarios. The debt sustainability analysis has shown that the debt-to-GDP ratio should stabilise in the longer term despite this year's surge in debt. However, the debt ratio will increase over the projection horizon, should the adverse scenarios materialise (e.g. in case of a larger-than-expected rise in interest rates, slower-than-projected economic growth or a larger-than-anticipated deficit). This would in turn jeopardise debt sustainability. In view of this, it is crucial to adhere to fiscal rules, which would contain the deficit growth, and pursue fiscal measures aimed at strengthening economic fundamentals in order to ensure debt sustainability. In the long term (beyond 2025), the factors important for fiscal sustainability will include long-term changes, such as the worsening demographics, ageing population, slowdown in potential economic growth as well as various challenges related thereto.

The evolution of the debt-to-GDP ratio each year depends on three key factors: the average interest rate charged on government debt, the nominal GDP growth and the primary general government balance.³¹ The debt-to-GDP ratio may grow at a very rapid pace when interest rates exceed the rate of economic growth and the government does not generate sufficient primary surpluses to offset this impact. In addition to the baseline scenario³², the following three alternative scenarios have been selected to assess debt sustainability:

- 1) a scenario of **economic growth shock**, if the economic growth in the upcoming years turns out to be slower than expected;³³
- 2) a scenario of **primary balance shock**, which shows a potential effect of no fiscal consolidation and persistence of a larger deficit;³⁴
- 3) a scenario of **interest rate shock**, if the borrowing cost rises to a greater extent.³⁵

³⁰ Bouabdallah, O., Checherita-Westphal, C., Warmedinger, T., De Stefani, R., Drudi, F., Setzer R. and Westphal, A., 2019: Debt sustainability analysis for euro area sovereigns: a methodological framework. ECB Occasional Paper Series No 185 / April 2017.

³¹ $\Delta d_t = \left(\frac{i_t - g_t}{1 + g_t} \right) * d_{t-1} - pb_t + dda_t$, where d represents the debt-to-GDP ratio, i – the nominal interest rate, g – the nominal economic growth rate, pb – the primary balance, and dda – the deficit-debt adjustment. $\left(\frac{i_t - g_t}{1 + g_t} \right) * d_{t-1}$ stands for the interest rate-growth rate differential, also referred to as a snowball effect. The primary balance is the general government balance net of interest payments. The deficit-debt adjustment is a residual comprising factors that affect debt but are not included in the balance. In Lithuania, this factor has recently been mostly related to debt refinancing, where the country *ex ante* issues new debt to raise money for the redemption of a larger bond issue (the year of borrowing does not coincide with the year of debt repayment).

³² The baseline scenario assumes that the dynamic of the economy and public finances in 2020–2022 will match the Bank of Lithuania's September forecasts, and, starting from 2023, the average rate of nominal economic growth will reach 4.1%, the average interest rate charged on debt will stand at 1.5%, while the primary deficit will be 1.1%. Over the past 10 years, these indicators stood, on average, at 6.1%, 4.2% and 0.6% respectively.

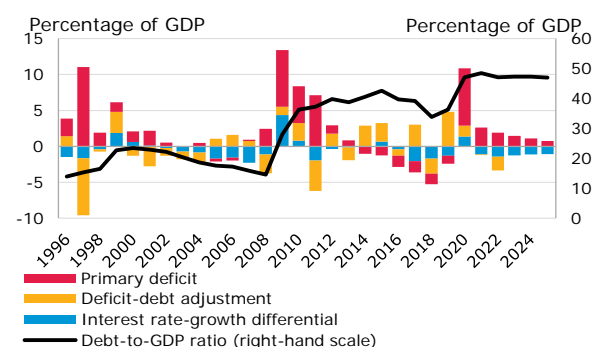
³³ The growth shock scenario assumes that the real GDP will grow by an average of 0.4% in 2021–2022 (the growth rate has been reduced by half of historical standard deviation as compared to the baseline scenario), while the growth rate will match the dynamics set forth for the subsequent years in the baseline scenario. Under this scenario, the primary deficit will, on average, stand at 2.7%, while the average interest rate will be 1.7% from 2021 and beyond.

³⁴ The primary balance shock scenario assumes that the primary deficit will, on average, be 2.9% as of 2021 (higher by half of historical standard deviation). Economic growth will match that envisaged in the baseline scenario, while the interest rate will, on average, reach 1.7%.

³⁵ The interest rate shock scenario assumes an increase of 2.8 percentage points (higher by 1.5 of historical standard deviation) in the interest rate on refinancing loans as of 2021. Even though this shock is more substantial compared to other scenarios, the average interest rate charged on debt would nonetheless remain below the past 10-year average under this scenario.

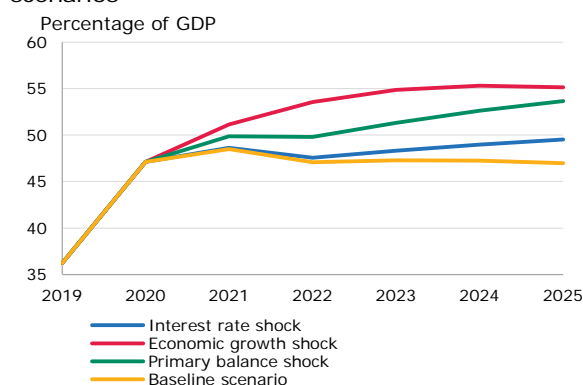
Debt dynamics are sensitive to the developments of the economy, primary balance and interest rates.

Chart A. Breakdown of debt under the baseline scenario



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

Chart B. Debt projections under alternative scenarios



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

Should the baseline scenario materialise, the debt-to-GDP ratio would increase to 47–49% in 2020–2021 and remain rather stable in the subsequent years (up until 2025). The primary deficit

would have a magnifying effect on the debt ratio, which, however, would be offset by a negative interest rate-growth differential, implying that the projected rate of economic growth would exceed the average interest rate on government debt (see Chart A). The assumption of a relatively low interest rate in the baseline scenario is underpinned by the actual level of interest rates (the debt has been refinanced at relatively low interest rates in recent years) and the ECB's forward guidance projecting a low interest rate environment in the near term. The baseline scenario also assumes compliance with fiscal rules and movement towards the medium-term objective, i.e. the structural balance of 1% during the forecasting horizon, which is set to contain the deficit growth. Considering the historical data, such fiscal consolidation should be genuinely attainable.

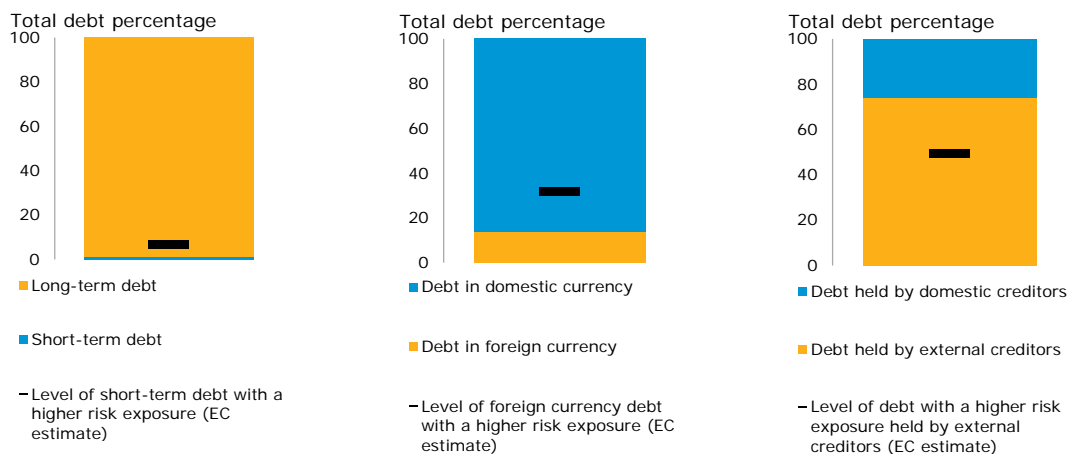
Alternative projections show that debt dynamics might be unstable if various risk scenarios were to materialise (see Chart B). The baseline scenario includes an important debt stabiliser, i.e. the assumption of compliance with fiscal discipline and the narrowing deficit throughout the projection horizon. The primary balance shock scenario shows that the debt ratio will not stabilise in case the government plans larger deficits. An additional shock to economic growth would also lead to a larger increase in debt, as can be seen from the growth shock scenario. For instance, should the economic fallout from the pandemic last longer and economic activity remain depressed over the next few years, the debt ratio would increase at a more rapid pace, yet would embark on a stabilisation phase along with the improving economic situation. GDP growth is one of the key factors reducing the debt-to-GDP ratio, and it is therefore important to make sure that the fiscal measures adopted by the government facilitate a more rapid economic recovery. Under the baseline scenario, the growth of debt-to-GDP ratio is set to be constrained by the envisaged negative interest rate-growth differential. This positive backdrop may induce governments to loosen their efforts, as the debt-to-GDP ratio in this case will decrease even if the deficit is regularly maintained. Nonetheless, studies show that such periods should be treated with sufficient caution. Mauro and Zhou (2019)³⁶ have noted a historically frequent occurrence of sudden spikes in interest rates after prolonged periods of a low interest environment, which lead to a significant increase in funding costs. Debt refinancing at a higher interest rate than envisaged in the baseline scenario would also trigger growth in the debt-to-GDP ratio throughout the projection horizon (the interest rate shock scenario). It should be noted that the shocks discussed herein may materialise

³⁶ Mauro, P., Zhou, J. 2020: $r - g < 0$: Can We Sleep More Soundly?, IMF Working Paper No. 20/52, IMF.

simultaneously and lead to a more rapid debt growth, but the results of shocks have not been cumulated. Given the interdependence between factors, feedback effects should also be taken into account.

A larger share of debt held by non-residents is the only factor implying higher vulnerability.

Chart C. Debt decomposition in Q1 2020



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

The assessment of debt and fiscal sustainability should not be limited to changes in the volume of debt, as it should also include other indicators signalling potential debt vulnerabilities. One of the major factors in this case concerns various aspects of the government debt structure (EC, 2020).²⁹ The risks to debt sustainability are considered lower if a larger share of debt is denominated in national currency (lower exposure to currency rate fluctuations), held by residents (lower exposure to capital outflows), issued at fixed interest rates and with a longer maturity (lower exposure to debt refinancing). As shown in Chart C, the bulk of Lithuania's debt is currently denominated in euro, almost the entire debt has been issued at fixed interest rates, while the share of short-term debt is small, which makes the country's debt more resilient to potential shocks. Hence the only indicator showing a higher level of vulnerability is its relatively large share held by non-residents (75%). Existing contingent liabilities³⁷ and the factors showing economic imbalances, in particular those related to the stability of the financial and external sectors, are also important for sustainability which is affected by these factors, given that sovereign debt crises are often related to banking crises (which lead to a substantial increase in deficits due to the state aid granted to the banking sector and magnify sovereign credit risks) as well as fluctuations in capital flows (a sudden capital outflow leads to a more limited access to borrowing). Therefore, the assessment of debt sustainability has to include monitoring of the economic imbalances triggering a rise in risk premia and the ensuing funding challenges, as well as (once they materialise) lead to a higher deficit and, consequently, higher borrowing needs. The majority of Lithuania's economic and financial indicators did not point to any larger imbalances before the onset of the pandemic.³⁸

³⁷ These are the liabilities that are excluded from the general government deficit or debt, but may arise depending on the outcome of a specific event (e.g. provision of state guarantees).

³⁸ EC, 2020: Debt Sustainability Monitor 2019 ([online source](#)).

ANNEX 2

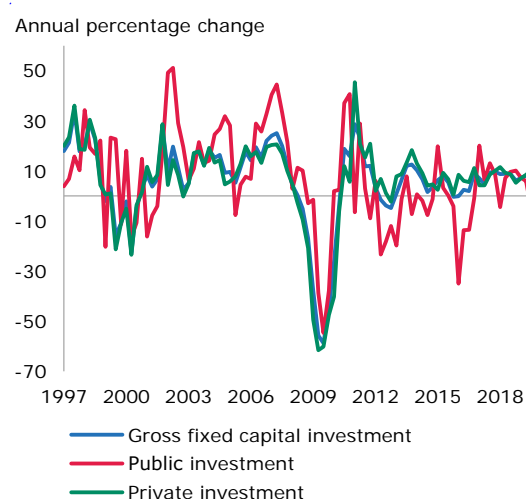
AN ANALYSIS OF INVESTMENTS AND THEIR DRIVERS IN LITHUANIA

This Annex analyses Lithuania's investment performance, trying to disentangle its potential drivers and shock effects.³⁹ The aim here is to shed light on these points, possibly helping policy makers in keeping the momentum going and improving high innovation (and growth) oriented investment.

After the global financial crisis, and until the COVID-19 outbreak, investments in Lithuania recovered and were expected to be buoyant owing to the need for modernisation and automation as well as improvement in the use of EU funds (EC Country Report 2019). Last year, more innovation-oriented investment types, particularly investment in ICT equipment and IPP, gained momentum. On average, the former grew by 24%, while the latter – by 6.6% on a year-on-year basis. Overall, each of these investment types account for 10% of the total, while investment in construction still takes the lion's share, yet its percentage over the total investment has declined from 70% to 50%. Its annual growth rate is also relatively stable, standing at around 8% since 2017.

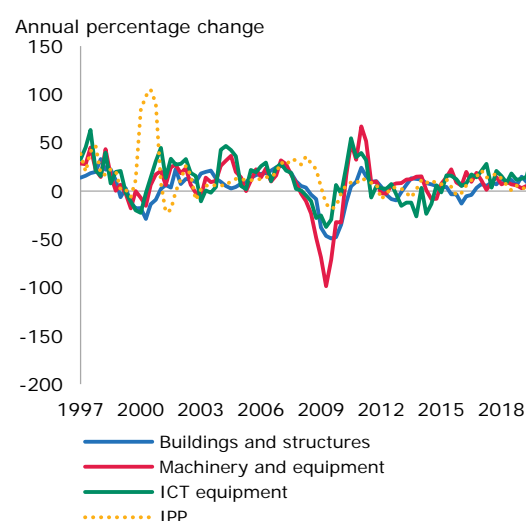
Investment development in Lithuania.⁴⁰

Chart A. Private and public investment



Sources: Author's calculations based on Eurostat and Bank of Lithuania data.

Chart B. Investment development by type of assets



Source: Author's calculations based on Eurostat data.

In order to look at the drivers behind these investments, a Bayesian VAR model was applied, using the quarterly data of 1997–2019. The VAR setup allows us to fully take into account the endogenous links among the variables and compute a historical decomposition to analyse the development of drivers over time as well as investment responses to different shocks.⁴¹ As possible drivers, the analysis included foreign demand, EU funds, the REER with regard to price competitiveness, the uncertainty index⁴², private consumption, gross operating surplus (as a proxy for profits), credit impulse (based on loans to NFCs) and

³⁹ The annex is based on Comunale (2020), An Analysis of Investments and their Drivers in Lithuania, Bank of Lithuania, Discussion Paper Series, *forthcoming*.

⁴⁰ Provided in year-on-year log differences.

⁴¹ Four lags and priors were used: the independent Normal-Wishart (S0 as univariate AR). Block exogeneity for foreign demand was also applied. Several robustness checks based on BVAR and variable choices are available in Comunale (2020).

⁴² The average uncertainty index for Lithuania is from Gieseck and Largent (2016) and includes uncertainty in macroeconomic and financial variables.

real interest rates to NFCs.⁴³ It also included two dummies: the first one for 2009, as there was a shift due to the global financial crisis and co-financing of EU-funded projects (9 cents for every €1 compared to 42 cents for every €1 before) and the second one for 2016 due to the new EU funds programme. The data was taken in year-on-year log differences with the exception of the uncertainty index and real interest rates.

The main outcomes are mostly in line with the literature (e.g. IMF, 2015). They point to the crucial role of the demand-side factors and uncertainty. However, some crucial differences between private and public investments as well as across their types have also been found, because they are quite heterogeneous in terms of incentives, decision making and financing sources.

Private investment is mainly driven by foreign demand, while response to its shocks tends to be of a larger magnitude compared to those of private domestic consumption, and this difference is more prominent than in case of public investment. The more business-related sectors are more exposed to foreign markets, given their propensity to export. For the same reason, the REER also plays an important role.

The other key drivers of private investment are EU funds and uncertainty. Although EU funds certainly feed investment, in the short run business and business-related investments are crowded out. However, EU funds have some positive contributions to public investment, as they are mainly directed thereto. Such crowding-out effect is not observed between private and public investments *per se* but only in terms of money from EU funds. Due to the latter, the injection of funds may have some distortionary impact on the public investment market, with EU funds being directed to public investment, by providing a service or good that would otherwise be a business opportunity for the private industry, or by allocating EU funds and favouring specific investment categories. Looking at type-specific investments, there are some differences in the impact of EU funds across sectors. As for uncertainty, this means that businesses are more likely to make investment decisions when the prevailing uncertainty at both global and local levels is lower. The uncertainty index is measured as the average of several macroeconomic and financial measures, reflecting both international and domestic uncertainty. Uncertainty is also a key factor for the construction sector, especially in case of business-related construction, e.g. of offices or shops, as its increase may redirect investment towards more profitable projects.

Interest rates play a very minor role as an investment driver, thus no significant reactions to their shocks have been observed. This means that changes in credit conditions have almost no impact on investment. The largest negative contribution, although much smaller than in case of other drivers, could be spotted during the global financial crisis. In addition, the contribution of credit impulse, as a relative growth rate of loans to NFCs over GDP, generally seems to be only of minor importance for private investment growth. This could be explained by the relatively low level of investment financing through credit institutions. In the last decade, the share of investment financed by bank lending in Lithuania reached roughly 20%, which only started increasing in the more recent periods. However, own funds remain the main financing method (accounting for more than 50%), while the share of the state/municipal budget together with EU sources stands at roughly 25%.

As regards public investment, a clear pro-cyclicality can be observed, with an increase in response to shocks in both the REER and demand (in the past, these two factors were among the most important drivers as well). This can probably be simply explained by higher budget income when a country is in the positive phase of the business cycle, which entails higher investment possibilities and expected gains. Public and private investments are also positively correlated and contribute to each other's variations.

⁴³ The analysis started with the same drivers as in ESCB (2018). The variables come from a selection by Granger causal priority applied by Jarociński and Maćkowiak (2017) and from the analysis of impulse response functions (in terms of signs and significance). Then the analysis included EU funds and some Lithuania-specific dummies. The identification is a Cholesky type with the ordering as in the text. Investments were placed before interest rates. More details on the BVAR setup are available in Comunale (2020).

EU funds are mainly directed to public investment: there is a positive, albeit limited, reaction to positive short-term shocks of EU funds and some positive contribution of this particular driver in the longer term. This outcome can also be the result of certain accounting issues: EU funds are accounted in a cash flow way, while investments are more continuous and smoothed in the long term, hence they are accounted in different periods, which in turn can be important at a quarterly frequency. Moreover, co-financing has varied over time since 2004 and this can affect the outcomes. In addition to this direct effect of EU funds, there is also an indirect impact through the REER, as its increase (i.e. a decline in competitiveness) gives a positive reaction in public investment. The growth in EU funds makes a country richer through a boost in demand, thus increasing inflation (in good times and in transition periods, the Balassa-Samuelson effect can kick in causing a rise in prices) and ultimately pushing the REER up, i.e. leading to a lower competitiveness level. Therefore, both public investment and competitiveness seem to have in common synchronisation with business cycles.

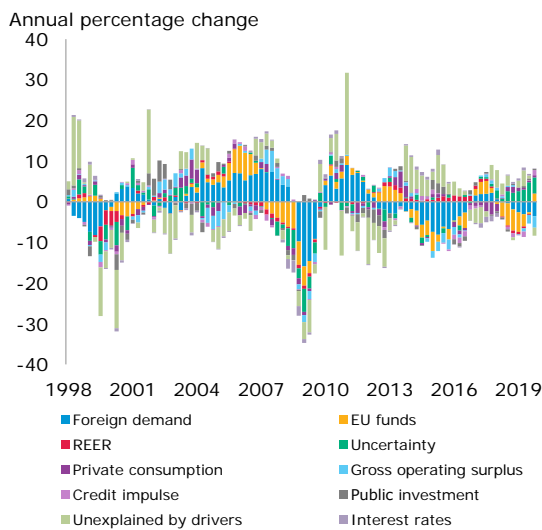
Having looked specifically at more innovative categories – investments in ICT and IPP – some major differences have been found. These types are mostly, but not exclusively, linked to private investment. Looking at their simple correlations, ICT equipment is more linked to traditional types of investment, such as machineries, as compared to IPP. This is mainly due to the fact that the latter includes rather intangible assets (computer software, databases, entertainment, literary and artistic originals) together with a general category of investment in R&D.⁴⁴ Uncertainty shocks seem to matter only for IPP, which reacts positively to increased uncertainty, suggesting riskier types of investment. When uncertainty is higher, investors are either prone to safer assets or more cutting-edge investment. In Lithuania, the latter way seems to be more popular, with IPP investments benefitting from heightened macro-financial uncertainty. Historical data shows that credit impulse is important for the both innovation types, yet there is a significant positive reaction to a shock in loans to investment in ICT equipment. EU funds contribute mostly positively to the both types. However, in case of ICT, the effect is very marginal and is seen only in the medium term, while for IPP the positive response in the short-to-medium run is more significant. IPP may benefit more from a positive shock in EU funds, as there are several programmes for direct and indirect allocation of EU funds designed for cutting-edge innovation ideas, researchers and institutions, start-ups, renewables and green economy, to name only a few.

Summing up the key results: (1) the role of interest rates is very minor; (2) demand-side variables (foreign demand or private consumption) play a crucial role; (3) there is pro-cyclicality of public investment and a positive correlation with private investment; (4) uncertainty is a key factor for some sectors and it positively drives more innovative/intangible investment; and (5) although EU funds certainly feed investment flows, a crowding-out effect can be observed in the short run (especially for business and business-related investment), while there are some positive contributions to public investment. Lastly, part of the dynamics seems to be not explained by common drivers. Therefore, further analysis on specific potential drivers for each sector is needed.

⁴⁴ The categories and structures of asset types are described in European system of accounts (ESA) 2010 Manual (Chapter 23) ([online source](#)).

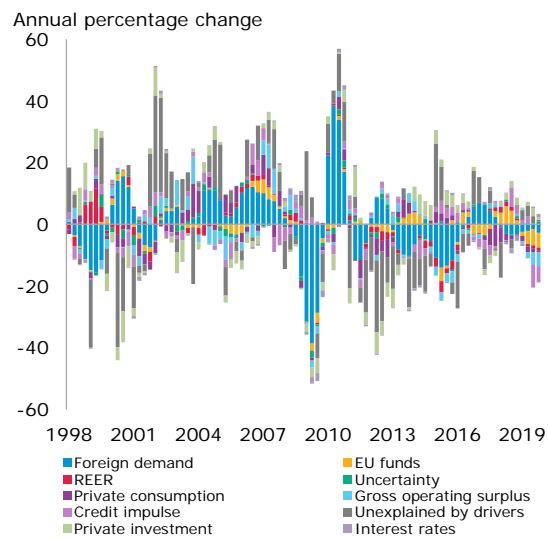
Historical decomposition: private vs. public investment.

Chart C. Private investment



Source: Author's calculations.

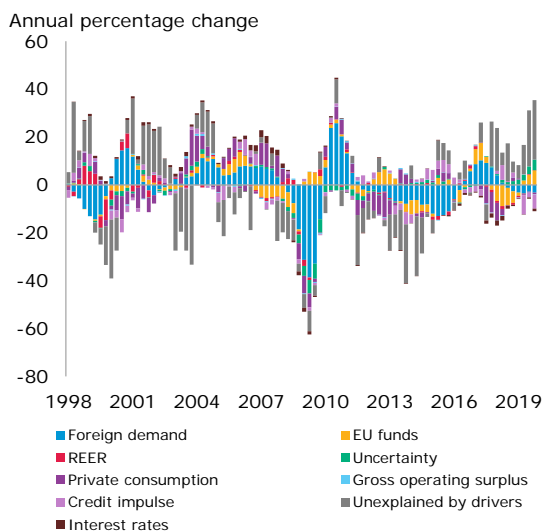
Chart D. Public investment



Source: Author's calculations.

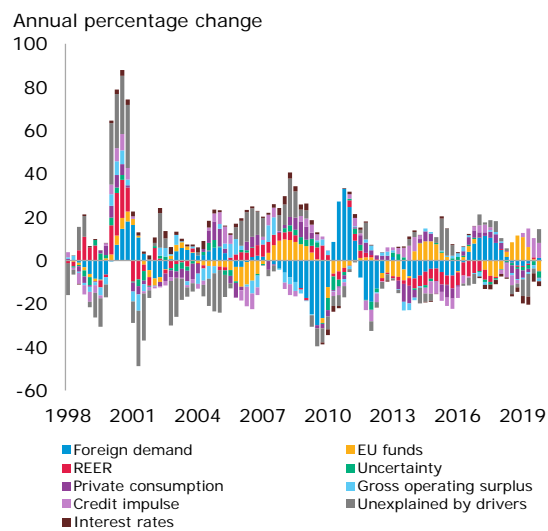
Historical decomposition: investment in innovation.

Chart E. Investment in ICT equipment



Source: Author's calculations.

Chart F. Investment in IPP



Source: Author's calculations.

Notes: Historical decomposition provides an interpretation of historical fluctuations in the modelled time series (in this case – investment) through the lens of the identified shocks.⁴⁵ The columns indicate percentage point contributions to the growth of each type of investment.⁴⁶

⁴⁵ The idea is that all variables in a VAR can be fully decomposed into the contribution of different shocks and an exogenous component which is the baseline projection. Therefore, if we take the sum of the contribution of all shocks at any time t , together with the baseline projection, we recover the original time series at time t (Wong, 2017).

⁴⁶ The “unexplained by drivers” shocks refer to the exogenous own shocks, given the current set of investment drivers. Having a different set of drivers and identification, for instance *ad hoc* for each type of investment, can reduce the importance of this component.

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