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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN CENTRAL BANK AND THE EUROGROUP

2019 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011

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CONTENTS

LIST OF TABLES

LIST OF GRAPHS

LIST OF BOXES

EXECUTIVE SUMMARY

Continued economic growth offers a valuable opportunity to intensify structural reforms ([1]). Since 2004, the country has undergone a sizeable process of catching up with the EU average. Nonetheless, a number of unaddressed structural weaknesses may hinder further progress. Growth prospects would benefit in particular from better-targeted investment in infrastructure, human capital and innovation, reducing administrative burden and addressing the labour shortages. Alleviating these challenges through well-designed structural reforms would help increase the potential for long-term growth and speed up the country's convergence towards the level of the higher-income economies.

Economic growth remains solid but may soften somewhat in the coming years. According to the Commission 2019 Winter Forecast, real GDP growth expanded strongly by 4.3 % in 2017, but slowed to 2.9 % in 2018. Household consumption remained the main driver of growth, propelled mostly by significant wage increases. Net exports are expected to have a neutral impact on GDP in the coming years. A high reliance on exports and on foreign direct investment are key vulnerabilities for a small open economy such as the Czech Republic. Addressing strategic investment gaps may increase productivity and, therefore, contribute to sustainable growth.

Public finances are sound but long-term sustainability is less favourable. The general government balance is expected to remain in surplus until at least 2020, supported by growth in taxes, allowing public debt to fall to around 30 % of GDP. By contrast, long-term sustainability is worsening due to higher costs related to ageing.

The performance of the labour market is very good but labour shortages are becoming more acute, spurring wage increases. Over the past 7 years, the employment rate has risen to nearly 80 %. Unless relevant measures are taken to support the employment of certain underrepresented groups, the scope for further employment increases is limited.

The overall picture of relatively low inequality and the continued rise in living standards masks some increasing regional disparities. While disparities are lower than in some other peer countries, the distribution of opportunities and challenges remains concentrated within certain regions. In general, poorer areas have lower productivity, higher gender inequality, increasing levels of homelessness, high indebtedness and more acute demographic challenges. On the other hand, richer regions perform much better in education and have a higher capacity to innovate, making them more attractive for investment.

Focusing investments in education and upskilling, domestic innovation, and transport and digital infrastructure would strengthen the potential for long-term growth. Labour and demographic constraints in a manufacturing-intensive economy warrant more investment in education and upskilling to ensure the country is prepared for future technological changes. Affordable childcare and tailored active labour market policies, to help people find, stay in or return to work, require particular attention to achieve inclusive growth. If combined with an increased focus on domestic innovation, productivity could be raised across the entire business spectrum, including small and medium-sized enterprises. Subpar road, railway and broadband networks appear to exacerbate regional disparities and hinder private investment. More effort is also needed to tackle the challenges posed by adverse climate and environmental effects, in particular for air quality and water management. Annex D identifies key priorities for support by the European Regional Development Fund, the European Social Fund Plus and the Cohesion Fund over 2021-2027 period in the Czech Republic, building on the investment needs and challenges outlined in this report.

([1]) This report assesses the Czech Republic's economy in light of the European Commission's Annual Growth Survey published on 21 November 2018. In the survey, the Commission calls on EU Member States to implement reforms to make the European economy more productive, resilient and inclusive. In so doing, Member States should focus their efforts on the three elements of the virtuous triangle of economic policy — delivering high-quality investment, focusing reforms efforts on productivity growth, inclusiveness and institutional quality and ensuring macroeconomic stability and sound public finance.

The Czech Republic has made some progress ([2]) in addressing the 2018 country-specific recommendations (CSRs).

There has been some progress in:

- Reducing the administrative burden on investment and in addressing weaknesses in public procurement practices.

- Strengthening the capacity of the education system to deliver quality inclusive education and in fostering the employment of women, the low skilled and the people with disabilities.

There has been limited progress in:

- Removing the bottlenecks hampering research, development and innovation.

There has been no progress in:

- Improving the long-term sustainability of public finances.

Regarding progress in reaching the national targets under the Europe 2020 strategy, the Czech Republic currently meets, or is on track to meet targets in most areas**.** This includes the respective targets for poverty, social exclusion, employment, renewable energy, greenhouse gas emissions and tertiary education. More progress will be needed to increase the energy efficiency target, reverse the increasing rate of early school leaving and to achieve the target of 1 % of GDP for public R&D expenditure.

The Czech Republic performs relatively well on the indicators of the Social Scoreboard supporting the European Pillar of Social Rights. The labour market is strong and the country is one of the best performers in addressing the overall risk of poverty and the social exclusion rate. However, the country shows a low participation in early childhood education and care. Gender inequalities in terms of pay and employment remain high due to parental leave rules and a lack of affordable childcare and long-term care facilities. While the poverty rate is low, there is a lack of affordable and quality social housing and the personal indebtedness of certain socio-economic groups and homelessness are increasing.

Key structural issues analysed in this report, which point to particular challenges for the Czech Republic's economy, are the following:

- **Recent pension measures have helped to improve the adequacy of pensions but lack safeguards to ensure long-term sustainability of public finances**. Pension-related policy measures taken in recent years have worsened the long-term budgetary outlook by around 2 percentage points of GDP by 2070. Expected gains in life expectancy are not automatically taken into account and corresponding adjustments to the retirement age are at the government's discretion. The projected rise in age-related spending on healthcare also puts long-term sustainability of public finances at risk. Further consolidation of the hospital sector and investment in primary and integrated care could improve the cost-effectiveness of the healthcare system.

- **The affordability of housing is deteriorating due to increasing prices.** Both house prices and the volume of mortgage lending have grown fast since 2016 on the back of economic expansion, strong wage inflation and supply constraints. House prices are estimated to be slightly overvalued but still below the level of significant risk. In this context, the Czech National Bank has issued macro-prudential recommendations, which, however, are not binding. Furthermore, the central bank has reacted to the increased activity in the credit market and inflationary pressures, by increasing the base rates 7 times in 16 months.

- **Despite its good performance, the Czech labour market has a high level of labour shortages and persistent structural issues.** Parental leave rules, the lack of formal childcare and the fact that caring responsibilities are often taken up by women are all factors that prevent women's labour market participation. In addition to the underused labour market potential of women, various socio-economic factors and inefficient targeting of active labour market policies are

([2]) Information on the level of progress and actions taken to address the policy advice in each respective subpart of a country-specific recommendation is presented in the overview table in the Annex.

holding back low-skilled people, older people and people with disabilities from entering the labour market. Furthermore, integrating foreign workers into the Czech labour market is challenging.

- **Low investment, the limited attractiveness of the teaching profession and socio-economic inequalities are negatively affecting the level of education achieved.** There is a shortage of teachers due to low job prestige, low salaries compared to other professions and limited development opportunities. The early school leaving rate has increased, albeit from low levels, reflecting rising socio-economic inequalities in school outcomes. The impact of the reform on inclusive education has been positive overall but, so far, it remains modest on the participation of children from some disadvantaged socio-economic backgrounds in mainstream education.

- **The lower investment in transport infrastructure can increase regional disparities.** Being a transit country places great demands on the Czech Republic's infrastructure and its different forms of transport. However, investment in transport infrastructure is below EU average levels. The completion of the European transport corridors is far from being finalised and the suburban transport infrastructure remains deficient, limiting the ability to commute for work and housing affordability. Weak transport links also deter business activity, particularly in remote regions.

- **The country has not yet created a fully functioning innovation ecosystem based on domestic research and development.** The country remains a moderate innovator at EU level, despite an increase in research and development intensity. This may be linked to public investment lacking a coherent strategy to increase the modest research performance and improve cooperation between the private sector and the academia. Productivity is driven mostly by large foreign companies, while domestic firms lag behind in terms of value added generation. Moreover, total factor productivity, indicating how efficiently capital and labour are being used in production, has been growing at a relatively slow pace. Therefore, investment needs to support technology uptake and increase the innovation performance of firms, notably the domestic small and medium-sized enterprises.

- **Most regions have unused potential and require tailored support based on their specific needs.** While richer regions suffer from housing unaffordability and pressures on the suburban transport networks, the poorest areas face weak connectivity, demographic pressures, social exclusion, and low focus on innovation. Tailored measures could address these disparities and increase positive education outcomes, foster upskilling and improve the infrastructure.

- **A large administrative and regulatory burden may hurt further investment.** Fast-changing legislation and complex administrative procedures are seen by most firms as major obstacles to further investment, particularly in less-developed regions. A new construction law is being prepared in order to reduce the complexity of issuing building permits. Tax compliance costs for businesses appear to have increased.

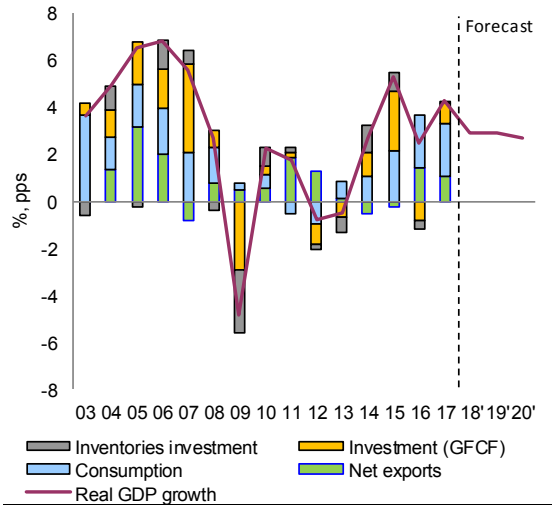
- **Despite progress, public sector performance and government effectiveness continues to be a challenge**. Administrative capacity is particularly limited in terms of strategic planning. Public procurement has seen some improvements, but certain practical challenges remain. Progress in adopting anti-corruption measures and in ensuring independence of the civil service seems to have slowed.

1. ECONOMIC SITUATION AND OUTLOOK

Economic growth

Economic growth remains solid in the Czech Republic. After the strong expansion in 2017 (4.3 %), real GDP growth slowed down in 2018 (2.9 %), according to the Commission Winter 2019 Forecast. Domestic demand was the main driver of economic growth in 2018, with household consumption propelled by rapid increase in wages and private and public investment. By contrast, net exports provided a negative contribution in 2018, after 2 years of positive balance. The slowdown in external demand together with the appreciation of the koruna contributed partly to this development.

Graph 1.1: **Real GDP growth and breakdown**

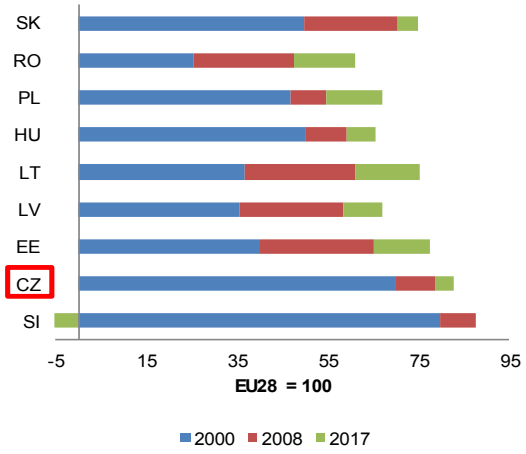


Source: AMECO, Commission Winter 2019 Forecast

Growth may slow over the coming years but economic convergence is set to continue. In 2019 and 2020 it is projected to reach 2.9 % and 2.7 %, respectively (Commission Winter 2019 Forecast). The current expansionary cycle that started at the end of 2013 will likely continue in 2019 and 2020, when GDP growth is estimated to converge towards its potential (Graph 1.1). Domestic demand is set to be the key driver of growth, as the contribution of the external sector will be neutral. Growth projections are around 1 percentage point (pp.) above those for the euro area, stressing the robustness of the convergence process in the medium term.

The Czech Republic has undergone a sizeable catch-up process relative to the EU average. Large inflows of foreign direct investment (FDI) have played a leading role in the process, creating jobs and boosting productivity growth. The convergence process slowed down between 2008 and 2013, when the Czech Republic was more affected by the global crisis than other countries in the region. It then resumed in 2013 as both real wages and productivity started to increase. Between 2000 and 2017 the gross national income (GNI) ([3]) per person, adjusted for purchasing power parity, rose from 70.2 % to 82.7 % of the EU average, a real convergence of 12.5 pps (Graph 1.2). Economic policies that encouraged both foreign and domestic investment, combined with significant financial support through EU funds, underpinned the convergence process. While the catch-up pace was lower than in other Central and Eastern European countries (particularly in the Baltic region), the Czech Republic is one of those closest to the EU average in terms of economic development and living standards.

Graph 1.2: **Gross national income per person (PPS) as a percentage of the EU average**



Source: Ameco, European Commission

As a small and open economy, labour shortages and uncertainties in global demand could potentially constrain future growth. The Czech Republic highly depends on potential frictions in global trade and the economic development of

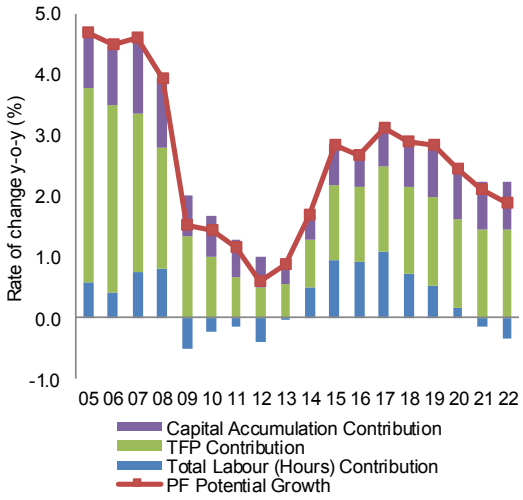
([3]) GNI provides a more accurate picture of national income available for domestic economic activities than GDP in countries with a significant stock of FDI, such as the Czech Republic, in which FDI-related earnings outflows can drive a gap between GDP and GNI.

some of its main trade partners (e.g. Germany, France or the UK). In addition, the cost-competitiveness of exports might erode if the observed tightness in the labour market persists and the resulting real wage growth continually outpaces productivity growth. The Czech Republic has the lowest rate of unemployment and that of job seekers per vacancy in the EU and the OECD. In this context, businesses have started to invest more in machinery to offset the current labour shortages. However, the lag in the investment-to-productivity could possibly restrain economic growth in the near future.

Potential growth

Potential growth moved beyond the peak of the cycle. After reaching almost 3 % in 2017, in the coming years it will gradually abate towards 2 %. After widening in 2017 and 2018, the output gap will likely stabilise at around 1 % of GDP in 2019 and 2020, which should partially temper inflationary pressures (Graph 1.3).

Graph 1.3: **Potential GDP and drivers**



Source: European Commission

The decline in the working-age population and technological change brings new challenges. Demographic changes and limited gains in productivity hamper potential GDP growth. Besides tapping into the labour potential of underrepresented groups, measures to sustain growth through the labour market include integrating of workers from EU and non-EU countries and extending working careers (i.e. through healthier and more productive lives). Furthermore, mismatches in qualitative skills can emerge in relation to the transition to Industry 4.0, requiring new education and training measures. Administrative burden and low trust in the public administration may hamper further foreign and domestic investment and contribute to the shadow economy, estimated at around 15 % of GDP in 2015 (European Commission, 2017).

Household consumption

Household consumption is the main driver of economic growth. High employment, higher wages, increasing real disposable income and low credit costs have boosted private consumption growth in recent years. The 3 % to 4 % annual growth seen since 2015 will likely continue until 2019. According to the Commission Autumn 2018 Forecast, the moderation in wage growth predicted for 2020 is expected to go hand in hand with a deceleration of private consumption growth (2.5 %). Household savings could recover from their current low levels to a rate of almost 11 % of gross disposable income up to 2020. There is also a change in consumption patterns associated with record levels of consumer confidence. The more buoyant consumption categories in 2017 were semi-durable and durable goods, both with an annual growth of around 10 %.

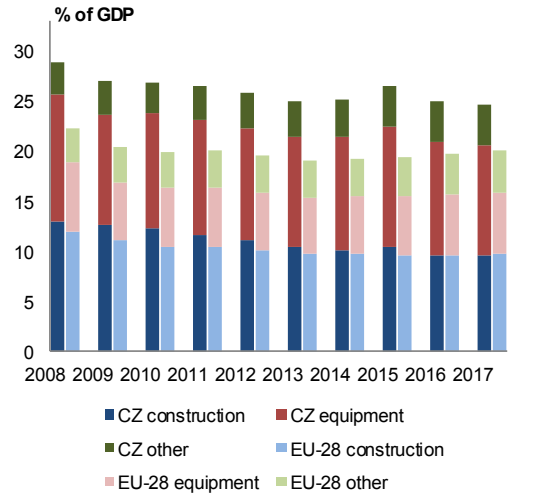
Investment

Investment has gained momentum in the last two years and its outlook remains positive. Investment in physical infrastructure increased by 3.3 % in 2017 and has accelerated to 7.8 % in 2018 (Commission Autumn 2018 forecast). Automation and robotisation needs in manufacturing, public investment supported by EU funds and the revival of investment in construction in the first half of 2018 contributed to this surge. Investment growth may moderate in 2019 and 2020, but will remain above 3 % on the back of increased inflows of EU funds.

Investment in automation represents an opportunity for Czech industry, in particular for carmakers. Investment activity as a proportion of GDP has traditionally been around 5 pps above the EU average (24.7 % vs 20.0 % in 2017) due the weight of the manufacturing sector in the economy, which requires high levels of investment

in equipment (Graph 1.4). Manufacturing amounted to 26.8 % of gross value added (GVA) in 2017, 12.5 pps more than the aggregate EU average. The automotive sector is the largest branch of Czech industry, both in terms of output and employment. However, the current context of severe labour shortages and revised CO_2 emission standards for cars, poses significant challenges in the sector. Therefore, despite the high degree of automation, carmakers and other manufacturers are expected to increase investment in equipment (see Section 3.4).

Graph 1.4: **Investment by sector as a share of GDP**



Source: AMECO

Inflation and monetary policy

Despite steady wage growth, the Czech National Bank (CNB) contained inflation below the upper limit of the tolerance band (3 %). Consumer price inflation, measured by the the Harmonised Index of Consumer Prices, slowed down slightly in 2018 to 2.0 %, from 2.4 % in 2017. The rapid growth in energy prices in the second half of 2018 was offset by the moderation in food prices. Further tightening in monetary policy is likely to ensure that inflation stabilises at CNB's 2 % target in the second half of 2019 and remain close to that in 2020. Consumer prices are forecast to grow by 2.1 % in 2019 and 1.9 % in 2020 (Commission Winter 2019 Forecast).

The CNB increased the base rate seven times in 16 months. This was in response to the increased activity in the credit market and inflationary pressures. As a result, the base interest rate (two-week repo rate) increased from 0.05 in July 2017 to 1.75 % in November 2018, further widening the rate differential with the euro area (see Section 3.2). Further interest hikes may follow in the coming quarters.

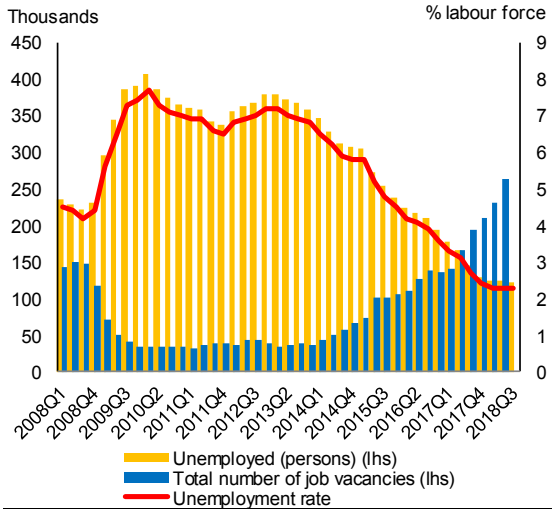
Labour market

The Czech labour market continues to be a top performer. The employment rate has risen steadily in the last 7 years, reaching 80.0 % in Q3-2018. Overall employment growth is expected to slow down to 0.3 % in 2019, given reduced scope for further increases in the participation rate (see Section 3.3). The unemployment rate fell to a record low of 2.9 % in 2017 and 2.1 % in Q4-2018, the lowest in the EU for the second year in a row and will likely stabilise at around 2.5 % over the next 2 years (Commission Autumn 2018 forecast). There have also been recent improvements in terms of youth (5.3 % in Q4-2018) and long-term unemployment (0.7 % in Q3-2018). With the economy near full employment, labour shortages are becoming more acute and have spurred wage increases after several years of more subdued growth. About 45 % of manufacturers and 40 % of builders cited labour shortages as a factor limiting production in Q4-2018 ([4]) and the number of job vacancies has been twice that of unemployed people since mid-2018 (Graph 1.5).

The rate of employment is weaker for low-skilled workers, women with young children, people with disabilities and older-age groups. As they bear most of the care responsibilities, the employment rate of women in 2017 (70.5 %) is below that of men (86.3 %). The employment rate of low-skilled workers in the labour market has stagnated since EU accession. Their employment rate of around 30 % is around 50 pps below the Czech average. At 62.2 %, the employment rate of those between 55-64 years old was 24.6 pps below that of workers aged 25-54. The employment gap is also high for people with disabilities. Participation in training and lifelong learning is low, in particular for underrepresented groups.

([4]) European Business and Consumer Survey

Graph 1.5: **Unemployment and job vacancies**



Source: Eurostat

Social developments

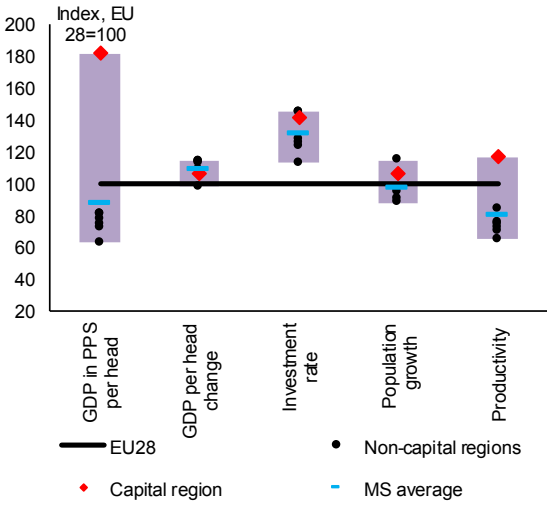
Overall, income inequality remains low in the Czech Republic. The income of the richest 20 % of the population was around 3.4 times higher than the income of the poorest 20 % in 2017, significantly lower than the 5.1 ratio in the EU. This ratio has remained stable since 2005 as real disposable household income grew relatively evenly across the different income groups. Low inequality is due to market incomes (i.e. income received by households before taxes and social transfers) being distributed relatively equally. The gap between market income inequality and disposable income inequality (i.e. after taxes and transfers) is similar to the EU average, suggesting that the Czech tax-benefit system is in line with the EU in terms of reducing inequality.

Inequality of opportunity is significantly influencing educational outcomes and the risk of poverty. The risk of poverty for the children of low-skilled parents is among the highest in the EU, but among the lowest for the children of high-skilled parents. Socio-economic backgrounds also strongly influence educational outcomes. Unequal opportunities start early in life as high costs limit access to childcare for low-wage earners (see Section 3.3).

Regional disparities

The observed convergence and overall social situation mask increasing regional disparities. GDP per person varies from 63 % of the EU average in the Northwest region to 182 % in Prague. The Northwest region actually saw its GDP per head diminishing in absolute terms since 2010. Furthermore, while regions like Moravia-Silesia have been losing people, Prague and Central Bohemia regions have witnessed positive demographic developments.

Graph 1.6: **Regional disparities in the Czech Republic**



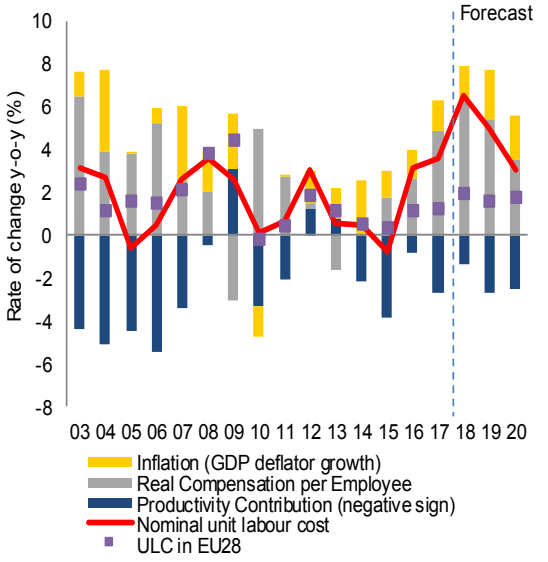
Source: Eurostat, European Commission

The distribution of opportunities and challenges is concentrated in certain areas. In general, rural regions are poorer, have a lower productivity, higher gender inequalities, increasing levels of homelessness, high indebtedness, a higher early-school leaving rate, low capacity to innovate and acute demographic challenges (Graph 1.6). These regions also witness increasing numbers of socially excluded localities and seizure orders, while facing a lack of affordable social housing. The gap between Prague and Brno and the less developed regions has further increased, most visibly compared with the Northwest region. Migration towards richer regions is increasing the process of suburbanisation in metropolitan areas, putting pressure on the housing stock and infrastructure networks (see Section 3.4.3).

Competitiveness

Robust job creation and the tightening labour market have pushed up wages. Nominal wages of employees increased by 6.4 % in 2017 with a further 8 % growth expected in 2018 and 2019 (Commission Autumn 2018 forecast). Real wage growth amounted to 4.1 % in 2017, while net earnings increased by 3 %. The wage bill grew by 8.3 % in 2017, driven by both wage increases and employment growth. Over the past 3 years, the growth of the wage bill was above the GDP increase and exceeded the benchmarks calculated based on economic fundamentals. As growth of the wage bill also exceeded the speed of productivity growth, nominal unit labour costs kept growing in 2017 and 2018 (Graph 1.7). Nonetheless, this recent wage growth went hand in hand with the gains in export market shares, suggesting that it has had limited effect on competitiveness so far.

Graph 1.7: **Nominal unit labour cost (breakdown)**



Source: Commission Autumn 2018 forecast

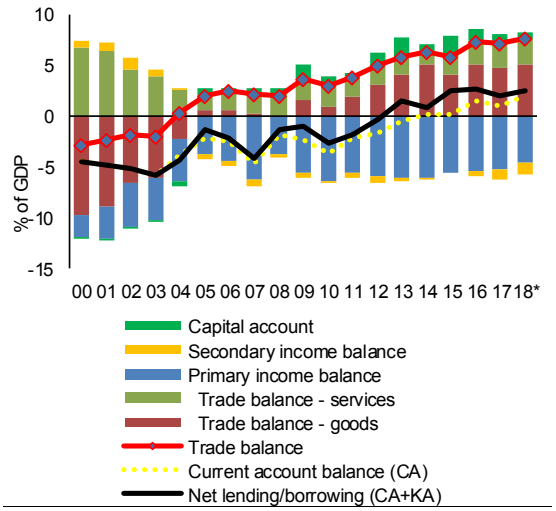
The increase in the minimum wage responded to the market trends. The planned minimum wage for 2019 is CZK 13 350, a 67 % cumulative increase in the last 5 years. Nonetheless, currently only 4 % of employees receive the minimum wage. In order to improve the living conditions of low-skilled workers, there is currently a domestic debate regarding further increases of the minimum wage.

External position

The Czech Republic's trade balance has been systematically positive since 2004. It recorded a surplus of 7.5 % of GDP in both 2016 and 2017. The contribution of goods and services to the trade balance surplus remained roughly unchanged compared to 2016, although the goods balance shows more historical volatility than the services balance. According to the Commission Autumn 2018 forecast, the trade balance may decline to 6.7 % in 2018 due to a smaller surplus in the trade of goods. Weaker external demand, in particular from Germany, and strong domestic demand have influenced these developments. The strong appreciation of the real effective exchange rate in the first half of 2018 was also detrimental to the trade balance, which will likely remain close to 7 % of GDP in 2019 and 2020.

The current account will remain balanced due to the large primary income deficit. The primary income balance is traditionally negative, due to a large extent, to profit outflows by foreign-owned firms operating in the Czech Republic (Graph 1.8).

Graph 1.8: **Current and capital accounts**



Source: European Commission
Note: 2018 is estimated based on quarterly data

Financial sector

Banks in the Czech Republic remain highly profitable and display healthy stability ratios. Since EU accession, their profitability rate has persistently been among the highest in the EU. The interest rate increases attract abundant euro area

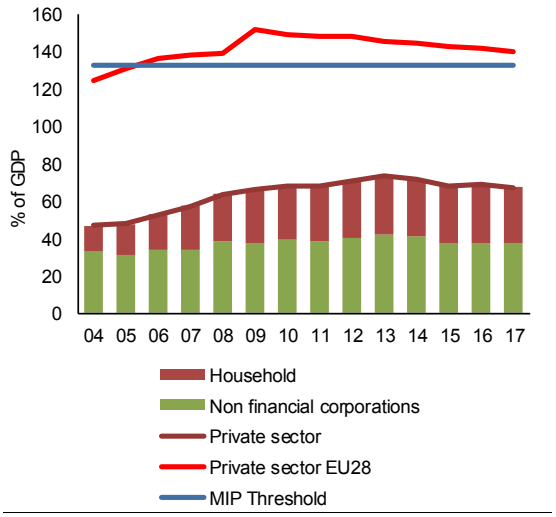
liquidity. The growth of financial sector liabilities escalated at the turn of 2016 to 2017, as non-residents purchased deposits denominated in korunas before the end of the currency exchange rate commitment in April 2017. These dynamics were caused by investors' expectations and abated once the Czech koruna floated freely again in foreign exchange markets.

House prices are estimated to be slightly overvalued. Both housing prices and the volume of mortgages have grown fast since 2016, on the back of economic expansion, strong wage inflation and supply constraints. Depending on the methodology used, house prices are estimated to be overvalued in the range of 0 to 10 %, still below the level of significant risk. In addition, household debt is still moderate compared to the EU average, despite increasing in the recent period. To control credit growth, the CNB has implemented a number of measures directed at lenders and borrowers (see Section 3.2).

Private indebtedness

Private indebtedness in terms of GDP (67.4 %) is low compared to the EU average (140 %). Nominal GDP has been growing nearly as fast as mortgage stocks. Household sector debt decreased by 1.6 pps to 29.7 % of GDP at the end of 2017, while the debt of non-financial corporations remained broadly stable at around 38 % of GDP. Both ratios of interest payments on gross disposable income for households and on value added for non-financial corporations were lower than the euro area levels at the end of 2017. Increasing interest rates do not yet pose a significant risk on repayments, although they might affect the non-performing loans (NPL) ratio. Overall, 9.7 % of people over 15 years were affected by enforcement orders in 2017 (see Section 3.3). The most exposed group appears to be lower income debtors with consumer loans. It is high in regions with the largest proportion of low-skilled people (over 20 % in the Ústecký region).

Graph 1.9: **Private sector indebtedness**



Source: Eurostat

Public finances

The general government balance will decline but will remain positive until at least 2020. On the back of the growing economy, the general balance has been in surplus since 2016, supported by growth in tax receipts and by lower-than-expected levels of public investment. Measures to prevent tax evasion, such as electronic evidence of sales and VAT control statements, have proven to be efficient and contributed to the revenue increase. Additional VAT receipts are expected to grow in line with GDP growth over the forecast horizon. Significant wage increases since 2017 in both the public and private sector boosted direct taxation receipts. On the expenditure side, most increases relate to public wages and pensions, which are expected to increase significantly in both 2018 and 2019. As the current EU funds cycle is advancing, public investment will likely pick up.

In line with the headline balance, the structural balance is also expected to decline towards zero. It will likely remain positive until at least 2020, amid a constant output gap. According to the Commission Autumn 2018 forecast, the debt-to-GDP ratio will continue to decrease, reaching around 31.2 % of GDP in 2020.

Table 1.1: **Key economic, financial and social indicators - Czech Republic**

	2004-07	2008-12	2013-15	2016	2017	2018	2019	2020
Real GDP (y-o-y)	6.0	0.2	2.5	2.5	4.4	2.9	2.9	2.7
Potential growth (y-o-y)	4.5	1.7	1.9	2.7	2.9	2.9	2.8	2.7
Private consumption (y-o-y)	3.7	0.5	2.0	3.6	4.3	.	.	.
Public consumption (y-o-y)	0.1	-0.2	1.8	2.7	1.3	.	.	.
Gross fixed capital formation (y-o-y)	7.4	-1.8	3.7	-3.1	3.7	.	.	.
Exports of goods and services (y-o-y)	18.1	4.2	4.9	4.3	6.7	.	.	.
Imports of goods and services (y-o-y)	15.7	2.9	5.6	2.8	5.9	.	.	.
Contribution to GDP growth:								
Domestic demand (y-o-y)	3.9	-0.3	2.3	1.4	3.2	.	.	.
Inventories (y-o-y)	0.7	-0.5	0.4	-0.4	0.1	.	.	.
Net exports (y-o-y)	1.4	1.0	-0.2	1.4	1.1	.	.	.
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0.5	-0.1	0.6	1.0	1.0	0.8	0.5	0.4
Capital accumulation (y-o-y)	1.0	0.7	0.5	0.5	0.6	0.8	0.8	0.8
Total factor productivity (y-o-y)	3.0	1.1	0.8	1.1	1.3	1.4	1.5	1.5
Output gap	3.4	-0.3	-1.9	-0.3	1.0	1.1	1.2	1.0
Unemployment rate	7.2	6.4	6.1	4.0	2.9	2.4	2.5	2.6
GDP deflator (y-o-y)	2.0	0.9	1.7	1.3	1.4	1.6	2.3	2.0
Harmonised index of consumer prices (HICP, y-o-y)	2.3	2.7	0.7	0.6	2.4	2.0	2.1	1.9
Nominal compensation per employee (y-o-y)	6.0	2.3	1.8	4.0	6.4	8.0	7.8	5.6
Labour productivity (real, person employed, y-o-y)	4.6	0.3	1.7	0.8	2.8	.	.	.
Unit labour costs (ULC, whole economy, y-o-y)	1.3	2.0	0.0	3.1	3.6	6.5	5.0	3.0
Real unit labour costs (y-o-y)	-0.7	1.0	-1.6	1.8	2.1	4.8	2.6	0.9
Real effective exchange rate (ULC, y-o-y)	3.8	1.8	-3.7	3.6	5.8	8.2	2.8	0.8
Real effective exchange rate (HICP, y-o-y)	3.1	2.1	-2.8	2.6	3.8	4.4	-0.2	-0.3
Savings rate of households (net saving as percentage of net disposable income)	6.4	6.9	6.3	6.5	4.4	.	.	.
Private credit flow, consolidated (% of GDP)	7.0	3.5	2.1	4.5	4.1	.	.	.
Private sector debt, consolidated (% of GDP)	51.3	67.3	71.1	68.9	67.4	.	.	.
of which household debt, consolidated (% of GDP)	18.2	28.8	30.8	31.3	29.7	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	33.1	38.5	40.3	37.6	37.8	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	.	.	.	3.4	2.5	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-3.1	-1.2	0.1	-1.8	-1.1	-2.1	-2.0	-1.4
Corporations, gross operating surplus (% of GDP)	29.1	28.9	30.1	30.5	29.9	28.1	28.0	28.2
Households, net lending (+) or net borrowing (-) (% of GDP)	1.6	2.3	2.1	1.6	0.3	0.7	1.2	1.2
Deflated house price index (y-o-y)	4.7	-1.0	1.6	6.7	9.1	.	.	.
Residential investment (% of GDP)	3.6	3.8	3.4	3.7	3.9	.	.	.
Current account balance (% of GDP), balance of payments	-3.2	-2.3	0.0	1.6	1.1	0.3	0.2	0.6
Trade balance (% of GDP), balance of payments	1.8	3.5	6.0	7.4	7.2	.	.	.
Terms of trade of goods and services (y-o-y)	-0.5	-0.7	1.0	1.0	-1.0	-0.5	0.3	0.5
Capital account balance (% of GDP)	0.3	0.9	1.7	1.1	0.9	.	.	.
Net international investment position (% of GDP)	-27.9	-43.8	-36.9	-26.9	-26.5	.	.	.
NIIP excluding non-defaultable instruments (% of GDP) (1)	17.9	8.7	18.2	28.2	28.7	.	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	30.7	42.2	52.1	57.1	70.6	.	.	.
Export performance vs. advanced countries (% change over 5 years)	77.2	30.7	-1.4	0.0	3.3	.	.	.
Export market share, goods and services (y-o-y)	.	.	0.8	4.5	1.2	.	.	.
Net FDI flows (% of GDP)	-4.8	-1.7	-0.2	-3.9	-2.7	.	.	.
General government balance (% of GDP)	-2.0	-3.7	-1.3	0.7	1.5	1.4	0.8	0.7
Structural budget balance (% of GDP)	.	.	-0.4	0.9	1.2	1.0	0.3	0.2
General government gross debt (% of GDP)	27.9	36.7	42.3	36.8	34.7	33.2	32.1	31.2
Tax-to-GDP ratio (%) (3)	34.4	33.2	34.3	34.8	35.4	36.5	36.5	36.4
Tax rate for a single person earning the average wage (%)	23.3	22.9	23.1	23.6	.	.	.	.
Tax rate for a single person earning 50% of the average wage (%)	18.7	14.3	15.1	16.1	.	.	.	.

(1) NIIP excluding direct investment and portfolio equity shares
(2) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

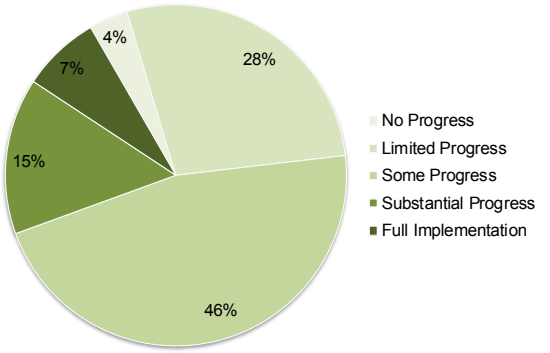
(3) The tax-to-GDP indicator includes imputed social contributions and hence differs from the tax-to-GDP indicator used in the section on taxation

(1) NIIP excluding direct investment and portfolio equity shares
(2) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(3) The tax-to-GDP indicator includes imputed social contributions and hence differs from the tax-to-GDP indicator used in the section on taxation
Source: Eurostat and ECB as of 31-1-2019, where available; European Commission for forecast figures (Winter forecast 2019 for real GDP and HICP, Autumn forecast 2018 otherwise)

2. PROGRESS WITH COUNTRY-SPECIFIC RECOMMENDATIONS

Since the start of the European Semester in 2011, 68 % of all country-specific recommendations addressed to the Czech Republic have recorded at least 'some progress ([5]). 32 % of these CSRs recorded 'limited' or 'no progress' (see Graph 2.1). In several areas the Czech Republic made 'substantial progress' or reached 'full implementation'. For example, there has been a full implementation in securing a timely and durable correction of the excessive deficit and ensuring compliance with the medium-term budgetary objective. Furthermore, substantial progress was achieved in adopting legislation to strengthen the fiscal framework.

Graph 2.1: **Overall multiannual implementation of 2011-2018 CSRs to date**



(1) The overall assessment of the country-specific recommendations related to fiscal policy excludes compliance with the Stability and Growth Pact
(2) 2011 annual assessment: Different CSR assessment categories
(3) The multiannual CSR assessment looks at the implementation until 2019 Country Report since the CSRs were first adopted.
Source: European Commission

The Czech Republic has made limited progress in improving the long-term sustainability of health and pension expenditure. Most measures adopted in the recent years have increased pension adequacy but lacked safeguards to ensure the long-term sustainability of public finance. The retirement age was capped at 65, a figure that will be reviewed in 2019 when the government is expected to issue a report on the pension system. The projected increase in age-related public expenditure on healthcare also puts long-term fiscal sustainability at risk.

Some progress was made in increasing labour market participation of some underrepresented groups. Improvements supported through EU funds increased the number of childcare facilities, supporting women's labour market participation. However, there are delays in implementing other policy measures. The announced changes in the provision of individualised services by public employment services, which could further help other underrepresented groups, have not yet brought tangible results. Due to the ineffective targeting and a lack of tailored measures, the progress in improving effectiveness of active labour market policies was limited, preventing these groups from benefitting from the favourable conditions of the labour market.

The Czech Republic has made some progress ([6]) in addressing the 2018 country-specific recommendations. However, no progress has been made in improving the long-term sustainability of public finances. The government adopted new measures, which, on the one hand, may improve the adequacy of the pension system, but, on the other hand, worsen sustainability.

There has been some progress in addressing weaknesses in public procurement practices and reducing the administrative burden on investment. The public procurement training system was improved and there has been increased cooperation of contracting authorities with professional authorities. Nonetheless, the proportion of tender procedures attracting only one bid remained very high, with most opting for the price-only criteria. As regards reducing administrative burden, an amendment to the current legislation has the potential to shorten and improve the effectiveness of permits proceedings relating to strategic infrastructure.

There was limited progress in removing bottlenecks hampering research and innovation. The announced 'Investment package', if well designed, could attract higher value investments in the country and thus strengthen the innovation potential. Nonetheless, the Czech

([5]) For the assessment of other reforms implemented in the past, see in particular section 3.

([6]) Information on the level of progress and actions taken to address the policy advice in each respective subpart of the CSRs is presented in the Overview Table in the Annex A. This overall assessment does not include an assessment of compliance with the Stability and Growth Pact.

Table 2.1: **Annual assessment of the 2018 Country Specific Recommendations for the Czech Republic**

The Czech Republic	**Overall assessment of progress with the 2018 CSRs: Some progress**
CSR 1: *Improve the long-term fiscal sustainability, in particular of the pension system. Address weaknesses in public procurement practices, in particular by enabling more quality-based competition and by implementing anti-corruption measures.*	**Limited progress** • No progress in addressing long-term sustainability of public finances. • Some progress in addressing the weaknesses in public procurement practices.
CSR 2: *Reduce the administrative burden on investment, including by speeding up permit procedures for infrastructure work. Remove the bottlenecks hampering research, development and innovation, in particular by increasing the innovation capacity of domestic firms. Strengthen the capacity of the education system to deliver quality inclusive education, including by promoting the teaching profession. Foster the employment of women, the low-skilled and disabled people, including by improving the effectiveness of active labour market policies.*	**Some progress** • Some progress in reducing administrative burden on investment. • Limited progress on removing the bottlenecks hampering research, development and innovation. • Some progress in strengthening the capacity of the education system. • Some progress in fostering employment of underrepresented groups.

Source: European Commission

Republic remains only a 'moderate' innovator as the proportion of innovative Czech enterprises is below the EU average

There was some progress in improving the quality and inclusiveness of the mainstream education and in fostering employment of some underrepresented groups. In education, several measures were adopted or announced, including an increase in funding in 2019 and a reform of the funding system in regional schools. Nonetheless, the progress in increasing the attractiveness of the teaching profession has been more limited. The labour market participation of women, low skilled and people with disabilities has somewhat improved but the effectiveness of active labour market policies needs to be further addressed.

Box 2.1: **EU funds and programmes contribute to addressing structural challenges and to fostering growth and competitiveness in the Czech Republic**

The Czech Republic is one of the largest beneficiaries of the European Structural and Investment Funds (ESI Funds). The total allocation in the current multiannual financial framework amounts to EUR 24 billion, potentially amounting to around 1.8 % of the annual GDP. By the end of 2018, around EUR 14.6 billion (61 % of the total) was allocated to specific projects. In addition, EUR 1.2 billion was allocated to projects on strategic transport networks through the Connecting Europe Facility. Furthermore, over 780 projects implemented by research institutions, innovative companies and researchers benefited from EUR 221 million of additional EU funding via Horizon 2020, covering a very broad thematic spectrum from transport, energy and ICT to environment, health and agriculture. EU action also strengthened national, regional and local authorities and the civil society. Over EUR 560 million was allocated to strengthen the capacity of the public administration at different levels. The European Commission's Coal Regions in Transition Initiative implemented at national level under the Strategic Framework for Economic Restructuring (RE:START) receives significant support from ESI Funds to enhance socio-economic and technological transformation in three regions with a sizeable coal mining industry.

EU funding is helping to address policy challenges identified in the 2018 CSRs. ESI Funds contribute to the removal of bottlenecks in research and innovation and support closer cooperation between business and research institutions. Overall, by the end of 2018, EU funding helped to improve infrastructure for more than 4 800 researchers and nearly 4 000 companies. Over 700 km of roads and 120 km of rail were built or reconstructed. Furthermore, water supply for over 360 000 people was improved, and over 200 000 people are now protected from flood risks. The European Social Fund (ESF) is instrumental to the reform of education and training in the Czech Republic, including by improving inclusive education. There are almost 10 000 projects being implemented by education institutions which helped, among others, to include 1 000 Roma children in mainstream education and to create more than 12 500 affordable childcare places. The funds also helps vulnerable groups to find work, aiding some 8 000 people with disabilities to get into employment.

In addition, the Commission can provide tailor-made technical support upon request from a Member State via the Structural Reform Support Programme to help implement growth-sustaining reforms to address challenges identified in the European Semester process or other national reforms. The Czech Republic is receiving support to establish a national e-health centre in view of improving the quality and cost-effectiveness of the health care. The Commission is also assisting the authorities to increase energy efficiency and to develop the national capital market. In addition, in 2018, the work has started on developing a national strategy to strengthen SMEs and increase capacity on tax collection and digitalisation in transport infrastructure.

EU funds mobilise private investment. ESI funds mobilise additional private capital by allocating nearly EUR 567 million in the form of loans, guarantees and equity. A total of EUR 744 million allocated under the European Fund for Strategic Investments (EFSI) is set to trigger EUR 4.1 billion in additional private and public investments. Under the EFSI Infrastructure and Innovation Window, 13 approved projects worth EUR 189 million are expected to trigger around EUR 711 million in total investment. Under the EFSI Small and Medium-Sized Enterprises (SME) Window, 17 agreements with intermediary banks were approved for a total of EUR 555 million in financing. This should mobilise around EUR 3.4 billion in investments with more than 20 036 SMEs and mid-cap companies expected to benefit from improved access to finance.

3. REFORM PRIORITIES

3.1. PUBLIC FINANCES AND TAXATION

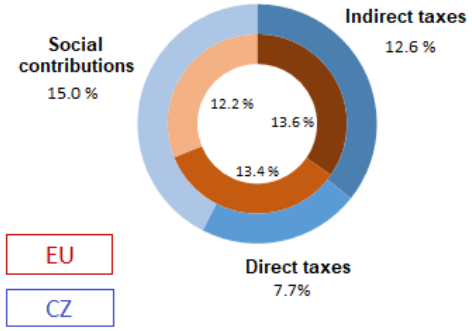
Taxation

Tax revenues have continued to increase in 2017, contributing to the general government surplus. They increased from 34.8 % of GDP in 2016 to 35.4 % of GDP in 2017. This brought the tax revenues to the highest level since 2004, although still below the EU (40.2 %) and euro area (EA) (41.4 %) averages. This increase was mainly driven by a significant increase in receipts from VAT and import taxes and duties, which, as a share of GDP, have been constantly higher than the EU and EA averages. The Commission Autumn 2018 forecast projects a further increase to around 36.5 % in 2018. These measures, together with the robust economic growth, have doubled the general government surplus in 2017 to 1.6 % and brought the government debt below 35 % of GDP.

Receipts from labour and consumption taxes have been increasing. Net social contribution revenues have increased in recent years on the back of a buoyant labour market and economy. By contrast, revenues from direct taxes, which mostly include taxes on income and wealth, are still significantly below the levels seen in the EU and EA. The share of direct taxes collected from households (mainly from labour income), for example, accounts for 4.0 % of GDP compared to 9.2 % in the EA. On the other hand, the implicit tax rate on employed labour is higher than the EU average ([7]) due to a higher reliance on social contributions (Graph 3.1.1). As a share of GDP, receipts from the corporate tax (3.5 %) have been slightly above the EA average (2.7 %). While the recurrent property tax is one of the least harmful taxes to economic growth (OECD, 2010), the receipts collected in the Czech Republic remain very low. In addition, the tax deductibility of mortgage interest decreases the cost of home ownership, contributing also to the housing price dynamics ([8]). Environmental tax intake remains relatively low, representing only 5.9 % of all taxes and social contributions collected in 2017.

VAT compliance, a government priority, has further increased. Tax evasion, as measured by the VAT compliance gap ([9]) has declined from 20 % in 2012 to 14 % in 2016 (CASE, 2018). After first phases of the electronic evidence of sales and the control statements were introduced, the VAT gap fell 3 percentage points (pps) in 2016 compared to 2015. Nonetheless, the estimated figure remains above the unweighted EU average of 12.3 % and higher than in some other neighbouring countries.

Graph 3.1.1: **Tax revenues by main taxes compared to EU average in 2017 (in % of total taxation)**



Source: European Commission; EUROSTAT

The taxation of labour for both low and average wage earners remains very high. Although the tax wedge is around 3 pps above the EU average for single persons with no children and receiving the average wage, the difference is particularly pronounced at lower wage levels. At 67 % of the average wage, the tax wedge is almost 4 pps higher than the EU average. At 50 % and 33 % of the average wage, the tax wedge gap vis-à-vis the EU average jumps to around 6 pps. In general, single persons with children, earning less than the average wage, have a significantly higher tax wedge compared to the EU average ([10]). By contrast, for couples with no children and only one earner making 167 % of the average wage, the tax

([7]) In 2016, the implicit tax rate on labour stood at 39.8 %, while the corresponding EU average was 36 %.

([8]) Currently only nine out of the 28 Member States maintain a mortgage tax relief with a sizeable effect.

([9]) The VAT gap is the difference between the amount of VAT revenue actually collected and the theoretical amount that is expected to be collected.

([10]) A single person with two children had a tax wedge of around 13.64 % in 2017. The EU average was 5.56 %.

wedge is 3 pps below the EU average. The wedge is mainly influenced by the high rate of employer's social security contributions. High tax wedges combined with high childcare costs may have a particular negative impact on the labour market participation of low-wage and secondary earners. In addition, self-employed people continue to benefit from a lower assessment base for social contributions. This can encourage activity but may also lead to some bogus self-employment**.**

Tax compliance costs for businesses remain above the EU median. According to the World Bank (2018a), the time needed to pay and file taxes in the Czech Republic totalled 230 hours in 2017, 18 hours less compared to 2016 but higher than in other neighbouring countries. The new VAT control statement requirements have increased the time to comply by around 14 hours. A proposed VAT reduction for certain products and services might also add complexity to the VAT system, while having a questionable efficiency. According to a recent study (European Commission, 2018a), almost 50 % of the respondents consider the complexity of tax laws in the Czech Republic as very burdensome, with another 29 % perceiving it as burdensome.

In early 2018, the government outlined a possible reform of the income tax. That particular proposal aimed to balance the reduction of the labour income tax base with an increase in the personal income tax rate**.** The government is currently elaborating the parameters of the final reform proposal. The European Commission carried out a simulation of the government's initial proposal (Box 3.1.1), which suggests that the (first-order) potential net budgetary cost could amount to around 0.26 % of GDP, mainly due to the decrease in income tax revenues. Additional tax reforms shifting taxes away from labour to more growth-friendly tax bases could be considered, especially since the implicit tax rate on labour is relatively high. Targeted changes in favour of low-skilled and secondary earners might also prove particular beneficial.

Fiscal framework

The independent fiscal institution became operational in early 2018. The main tasks of the Fiscal Council are the publication of an annual report on long-term sustainability and the evaluation of the fiscal framework. The Committee on Budgetary Forecast, composed of appointees from public and private organisations, also started assessing the macroeconomic and fiscal forecasts prepared by the government. The Parliament ratified the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union in December 2018. The key element of the treaty, the Fiscal Compact, is not binding for non-euro area countries and the government does not intend to adhere to it voluntarily.

Fiscal coordination among the various levels of general government remains low. A third of the general government expenditure is autonomous and outside the state budget. The Fiscal Responsibility Law of January 2017 introduced a cap of 60 % of the 4-year average of revenues for local governments' debt. The Ministry of Finance will assess the compliance with the new debt management rule in 2019. The Czech Republic has not yet fully transposed Council Directive 2011/85/EU on the requirements for the budgetary framework. The deadline for the transposition was 31 December 2013. In particular, the Legal Act on Management and Control Systems in Public Administration has not been adopted yet.

Debt sustainability analysis and fiscal risks

There are no fiscal sustainability risks in the short run. In addition to a favourable initial budgetary position, the government debt is expected to remain significantly below the 60 % of GDP threshold, reaching around 31 % in 2020. As a result, the medium-term fiscal sustainability risk indicator (S1) is at -2.9 pps of GDP.

The long-term sustainability of public finances may worsen. According to the recent Fiscal Sustainability Report (European Commission, 2019) ageing costs are expected to increase by 4.7 pps of GDP in the long term. The Fiscal Council (2018), in a recent report, provides even more pessimistic projections due to a different assumption regarding demographics and a no-policy change scenario. The report stated that if the current tax and spending policy were to be maintained, public expenditure on old-age pensions could almost double in the next 50 years.

Pension expenditure is the main factor reducing long-term sustainability. The measures taken in

recent years and changes in demographic projections have worsened the long-term budgetary outlook by around 2 pps of GDP by 2070. The retirement age was capped at 65, a figure that will be reviewed in 2019 when the government is expected to issue a report on the pension system. Nonetheless, according to the national authorities, the report will have no impact on the long-term sustainability but merely open a debate about an increase of the retirement age. Currently, expected gains in life expectancy are not automatically taken into account, since the Parliament, at the government's proposal, has to approve any system change.

Recent measures increase pension adequacy but are not coupled with policies that improve long-term sustainability. The government made pension indexation more generous by taking into account one half (rather than the previous one third) of real wage growth. It will also top up pensions with CZK 1 000 for all pensioners over 85 years of age and increase the flat rate share of the pension from 9 % to 10 % of the average wage. These measures will likely increase costs further and worsen the sustainability indicator (S2) by around 0.2 to 0.3 pps of GDP in the long term. While the government agreement mentions pension reform among its priorities, it is unclear what reforms are envisaged and if they can improve the sustainability of the pension system.

The projected increase in age-related public expenditure on healthcare also reduces long-term fiscal sustainability. Public expenditure on healthcare is projected to increase by 1.1 pps of GDP by 2070, above the EU average increase of 0.9 pps. Taking into account the impact of non-demographic drivers, it may increase by 1.9 pps of GDP by 2070, 0.3 pps above the EU average (European Commission, 2018b). In the short term, the health insurance funds present a surplus, but analyses shows that they are sensitive to an economic downturn (Křeček, 2017). An additional state contribution to the health insurance funds of about CZK 3.5 billion per year is planned until 2020.

The health system is still centred more around hospitals compared to other EU countries, suggesting inefficiencies in providing service. While overall expenditure on inpatient care was below the EU average in 2016, the total number of hospital beds remained above the EU average (6.9 per 1 000 inhabitants vs 5.1 per 1 000 inhabitants in the EU). In addition, hospital discharges and average length of stay are well above the EU average, while the percentage share of day cases in total discharges is substantially below the EU average (3.2 % versus 30.4 %). Patients in long-term care have a financial incentive to receive prolonged hospital treatment rather than being transferred to specific long-term care facilities, where they will have to make co-payments. Furthermore, long-term care focuses mainly on institutional care, which may not always be cost-efficient. The system would benefit from further investment in primary, integrated, and psychiatric care, including in the required infrastructure.

Ongoing policy reforms have the potential to increase efficiency. These include the mandatory introduction of e-prescription as of January 2018, a pilot project on centralised procurement, further development of Health Technology Assessment and a new system of inpatient care reimbursement and hospital benchmarking (new Diagnosis Related Groups). The latter, however, is still in a pilot phase and will most likely not be used for reimbursement before 2020. Developments in the area of e-health provision and scaling up centralised procurement are also needed.

Ageing poses an increasing risk of future shortages of health care staff in certain specialty fields and less urbanised regions. Even if the Czech Republic has around the same level of doctors and nurses per inhabitant as the EU average, there are regional disparities and a large proportion of the health workforce will reach retirement age in the coming decade. Efforts are under way to increase the number of medicine and nursing graduates and increase wages in the sector.

Ageing and multiple chronic diseases will put an additional burden on long-term and social care. The government has announced a new strategy on long-term care aiming to support home care and non-institutional care. It has also indicated its willingness to continue the reform of psychiatric care. The reform on deinstitutionalisation is less clear. There are plans to reduce the current high percentage of children under 3 years old in institutional homes but there is room for further investment.

Box 3.1.1: **Effects of the potential income tax reform**

The European Commission Joint Research Centre conducted simulations of the effects of the proposed income tax reform presented in February 2018. These were based on the EUROMOD model using 2016 EU-SILC data ([1]). The proposal aimed to reduce the effective tax rates and abolish the super gross tax base calculation. In a super gross tax base system, the tax base for employees comprises gross wages and salaries, including social and healthcare contributions of employers, amounting to 34 % of the income. The microsimulation assumed five parts of this potential reform: (i) abolishment of the 7 % solidarity surcharge; (ii) increase of the 15 % tax rate to 19 %; (iii) introduction of a second bracket tax at 23 % for annual incomes above CZK 1.5 million; (iv) removal of the employer social and health contributions from the tax base; and (v) reduction of the tax base by ¾ of social and healthcare contributions for self-employed.

The ceteris paribus net budgetary effect of the reform could amount to CZK 14.2 billion, or 0.26 % of GDP. The net effect comprises a CZK 13.7 billion decrease in income tax revenues and CZK 0.4 billion increase in means-tested benefits, the latter mainly being driven by the income tax bonus. On the other hand, the reform can reduce the average tax burden by 0.6 pps. Compared to the self-employed, employees seem to benefit the most from the reform. The distributional impact is plotted in Graph I, which presents the percentage change in mean annual disposable income by decile vis-à-vis the baseline without reform.

In order to disentangle the impact of the different elements of the reform, four sub-scenarios have been simulated: Reform 1 – only part (v); Reform 2 – only part (iv); Reform 3 – only parts (i), (ii) and (iii); Reform 4 – full reform with all parts ([2]). As shown in Table 1, the ceteris paribus deduction of social and healthcare insurance contributions for self-employed people (Reform 1) decreases the average tax-burden for this group as compared to employees, which was one of the aims of the full reform. However, this effect is not expected to fully materialise in the full scenario (Reform 4). The independent simulations of the other components (Reform 2 & 3) could give an indication on the reasons. Employees, for instance, experience a significantly higher decrease of their average tax burden when moving to a standard tax base (Reform 2).

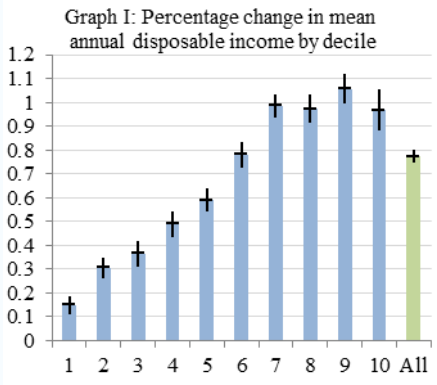


Table 1. Average tax burden by economic status ([3]) (%)

	Total	Difference w.r.t. the baseline			
Economic status	Baseline	Reform 1	Reform 2	Reform 3	Reform 4
Pre-school	0.0	0.0	0.0	0.0	0.0
Self-employed	*29.6*	*-1.9*	*-0.1*	*3.3*	*0.4*
Employee	*21.6*	*0.0*	*-4.5*	*5.0*	*-1.0*
Pensioner	1.1	0.0	-0.1	0.2	0.0
Unemployed	7.3	0.0	-1.0	1.4	-0.2
Student	4.6	0.0	-0.1	0.3	0.0
Inactive	4.7	0.0	-0.2	1.1	0.9
Sick or disabled	0.7	0.0	-0.1	0.1	0.0
Other	3.2	0.0	-0.3	0.5	-0.1
All	18.3	-0.3	-3.0	3.7	-0.6

([1]) EUROMOD is the tax-benefit microsimulation model for the EU. It simulates individuals' and households' benefit entitlements and tax liabilities (including social security contributions) according to the rules in place in each Member State. Incomes reported in the EU-SILC of 2016 refer to 2015.
([2]) The independent simulation of the reform components serves as a guide to assess independently the parts of the reform but remains an approximation. Given the tax system's non-linearities (i.e. the interplay of the reform's different parts), the full reform scenario cannot be broken down into separate contributions for each of the parts.
([3]) The economic status refers to the current main activity status at the time of the interview. This is determined based on how most time is spent.

3.2. FINANCIAL SECTOR

Financial sector

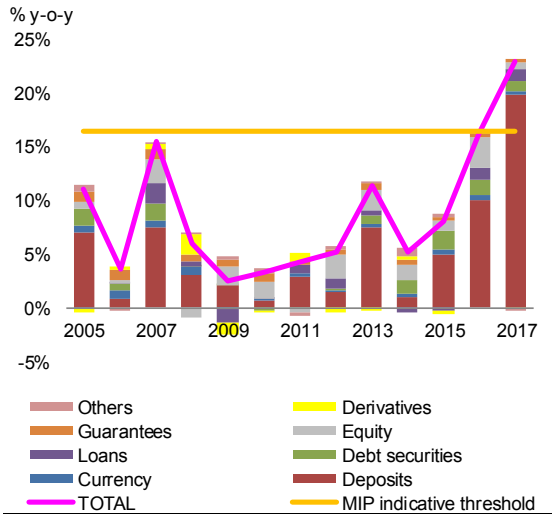
The Czech financial system is showing stable profits and adequate capitalisation. Close to 90 % of the system is foreign-owned and highly bank-centric, with the largest five banks accumulating a market share of two thirds of total assets. Banks are well capitalised and produced stable results even during the financial crisis, contributing over-proportionally to their group profits. Unlike other banks in the neighbouring countries, Czech banks were not affected by foreign currency mortgages or similar costly one-offs. Insurance companies are also well capitalised and most of them maintain stable profitability. In general, the Czech capital market is relatively thin compared to similar sized economies (see 2018 Country report) but more advanced than in most new Member States.

The soundness of the indicators suggests financial strength. Capital ratios have been stable since 2014, with a Common Equity Tier 1 ratio ([11]) above 16 %. The strong credit growth, which reduces the capital ratio, is offset by retained earnings and a renewed drop in aggregate risk weights (CNB, 2018). In addition, the CNB is proactive in hiking capital buffers. It was the first non-Scandinavian supervisor in Europe to introduce a countercyclical buffer of 0.5 % in 2017. This buffer was raised to 1.25 % in January 2019, with further biannual 25 basis points' hikes announced, reaching 1.75 % as of January 2020. According to CNB's simulations, banks have sufficient capital cushions overall to accommodate forthcoming hikes in the countercyclical buffer and support further growth in credit, assuming reasonable dividend policies. However, this space could decrease if profitability were to fall. Additionally, several banks have a systemic risk buffer ranging from 1 to 3 % of their capital. Given the relatively good capital levels of the banks, reaching the targets for minimum requirements for own funds and eligible liabilities is generally considered unproblematic.

The profitability rate of Czech banks is among the highest in Europe. Return on equity has been stable and remained in double digits since EU accession, with the bigger banks reaching 14.5 % in June 2018. Income on interest remains the banks' main source of profit, as interest rate margins have been increasing in 2018. The loan-to-deposit ratio rose to 99.2 % in Q2-2018 coming from below 80 % 3 years earlier. While acting as net creditors to their parent organisations until 2012, Czech subsidiaries of the major foreign banks now borrow abroad to lend domestically. The cost-to-income ratio has been constant over the last decade, reaching 48.2 % ([12]) in June 2018, significantly below the EU average. Banks are also quite reactive in adapting administrative costs to demand fluctuations.

The non-performing loans (NPL) ratio remains low. On the back of strong loan growth, the ratio halved between June 2016 (4.6 %) and June 2018 (2.2 %) for the system in aggregate. The NPL of domestically owned banks fell from 21.9 % to 7.2 % over that timeframe ([13]). This is a usual pattern during periods of strong economic expansion and may be concealing risks in the background (CNB, 2018). The NPL coverage ratio has increased steadily in the last 2 years reaching 52 % at the end of Q2-2018.

Graph 3.2.1: **Financial liabilities growth**



Source: Eurostat

Non-resident holdings of commercial bank deposits soared before the end of the exchange rate commitment (Graph 3.2.1). After April 2017, deposit growth slowed but the levels remain

([11]) This ratio is the core measure of bank solvency. It comprises equity capital, retained earnings and mandatory reserve funds, divided by risk-weighted assets.

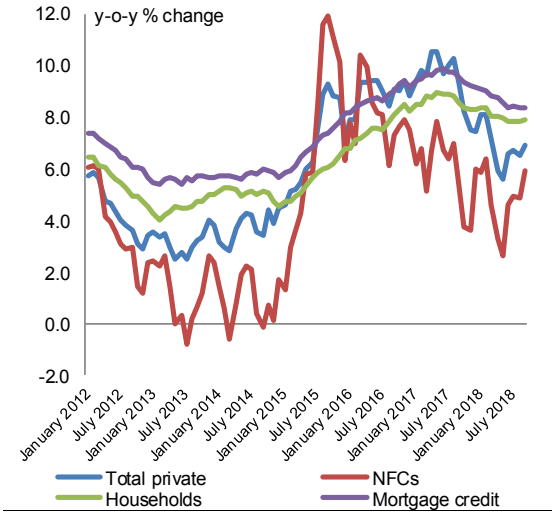
([12]) EBA data, covering only major banks.

([13]) Domestically owned banks represent only a small fraction of the Czech banking sector.

largely unchanged. This process was the counterpart to the CNB accumulating external assets. The central bank's external reserves are expected to remain stable in the short term at around 60 % of GDP. While there is a low risk of a disorderly withdrawal of foreign deposits, a gradual securities' sell-off may be preventing the appreciation of the Czech koruna. The positive interest rate differential makes a sudden outflow of deposits held by foreigners unlikely.

Since 2016, the continued spiral between property prices and mortgage loans has been the most significant domestic risk. Private sector loans grew by 6.7 % ([14]) in the 12 months to September 2018 driven mainly by the increase of mortgages (Graph 3.2.2). In September 2018, mortgages made up 40.6 % of total loans provided to the private non-financial sector and 23.8 % of Czech GDP, slightly decelerating since the 2017 peak. The continued supervisory action taken by the CNB, particularly in terms of macro-prudential measures, may explain the trend and ease the risks.

Graph 3.2.2: **Private credit growth**



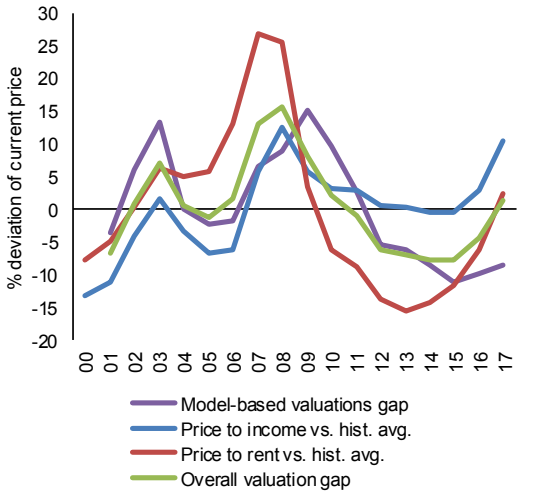
Source: European Central Bank

Housing market

Housing prices grew swiftly in 2017 but the escalation moderated in 2018. According to Eurostat, deflated house prices in the Czech Republic grew by 9.1 % on average in 2017, one of the fastest growth rates in the EU. However, these have moderated since the end of 2017, growing by 5.7 % year-on-year in Q3-2018. Since the beginning of 2015, the 23 % cumulative growth has been one of the highest in the EU and has outpaced real wage growth by more than 10 pps. As a result, housing affordability has been deteriorating.

Estimates indicate moderate positive valuation gap in the Czech housing market in the range of 0-10 %. Three standard metrics ([15]) of the degree of imbalance, based on historical averages for price-to-income and price-to-rent ratios, suggest little overvaluation of the housing market in 2017 (Graph 3.2.3). The highest gap relates to the price-to-income ratio compared to historical average. This estimate is close to the CNB's model-based approach, which suggests that in mid-2018 apartment prices were around 10 % above levels consistent with fundamental factors.

Graph 3.2.3: **Overvaluation gap**



Source: European Commission

According to the CNB, the affordability of apartments declined between 2015 and 2017. This relates to both price-to-income and debt-service-to-income ratios (CNB, 2018)**.** Some analyses on the price-to-income ratio (OECD, 2018) confirm this assessment and estimate that affordability in Q2-2018 was very close to the 2008 price levels. Other sources suggest the Czech Republic is the country with the least affordable own housing in 2017 in a sample of 12 EU

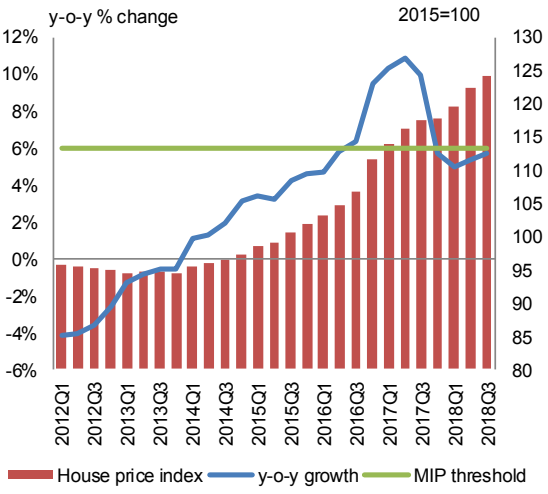
([14]) ECB data expressed in CZK.

([15]) For more information on the metrics see Philiponnet and Turrini (2017).

countries ([16]). Affordability of housing may further deteriorate due to increasing interest rates on mortgages.

Affordability problems are most acute in Prague and other large cities. As more than 60 % of residential property transactions in the country are concentrated in Prague, developments in the capital city considerably affect national aggregates. Bid prices for new flats in Prague increased by 69 % between Q1-2015 and Q3-2018, 38 pps more than in the rest of the country. Both demand and supply factors explain this price escalation. While demand-side factors are broadly spread across the country, supply constraints are particularly acute in Prague and other large cities such as Brno.

Graph 3.2.4: **Deflated house prices**



Source: Eurostat
Note: One of 14 scoreboard indicative thresholds, covering the major sources of macroeconomic imbalances: y-o-y changes in house prices relative to a Eurostat consumption deflator, with a threshold of 6 %

Good economic conditions have boosted the demand for residential properties and lead to an increase in mortgage loans. Overall, the stock of loans for house purposes increased by CZK 92.2 billion in 2017 reaching a total amount of CZK 1 152 billion (+8.7 % compared to the end of 2016). The proportion of homes occupied by an owner with a mortgage or a loan has almost doubled from 2008 (11.9 %) to 2017 (20.7 %), 4 pps below the EU average. Mortgage lending growth has stabilised at around 8 % year-on-year and is predicted to slow, in line with stricter macro-prudential rules introduced in October 2018.

The CNB still lacks statutory powers to issue binding macro-prudential recommendations. To upgrade the central bank's macro-prudential powers, the government tried to pass an amendment to the Act on the CNB in 2017. However, the end of the parliamentary term interrupted the legislative process. The government is expected to resubmit the amendment but the political support is not guaranteed. The private banking sector does not fully support this amendment, despite being broadly compliant with the central bank's recommendations. In contrast, the CNB believes that setting universal conditions for all lenders by law would ensure fair and transparent competition.

The CNB sets recommendatory caps to protect homeowners and mortgage lenders against negative equity. The recommendations mostly relate to the loan-to-value ratio. Lenders should not provide loans with loan-to-value ratios above 90 %. The volume of new loans with ratios of 80-90 % should be limited to a maximum of 15 % in every quarter. So far, the compliance with these rules is relatively high. However, the effectiveness of these caps could be put at risk if certain circumventive practices were carried out such as an optimistic assessment of the collateral value or a parallel provision of an unsecured loan to finance a purchase.

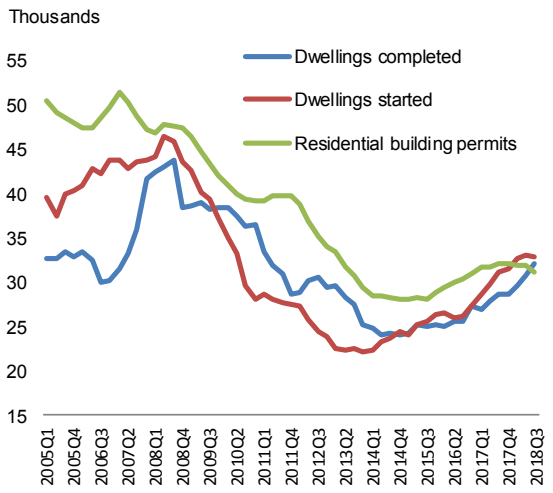
The debt of the borrowers should not exceed nine times their net annual income. To address the risk linked to loans with high loan-to-value ratios and take into account borrowers' ability to repay, the CNB has introduced two supplementary recommendations as of 1 October 2018. In terms of debt-service-to-income, applicants should spend no more than 45 % of their net monthly income on debt service. The debt-to-income rate was set at nine times the net annual income. Furthermore, only 5 % of the new loans provided in a trimester may exceed the limits on the debt-to-income and debt-service-to-income ratios. Through the new measures, the CNB intends to reduce borrowers' vulnerability and cool the housing market. The three recommendations are complementary and their interaction could lead to even stricter limits.

([16]) According to Deloitte's Property Index (2018), a standardised new dwelling in the Czech Republic costs the equivalent to 11.3 years of average gross annual salaries.

Certain private banks suggest the new debt-service-to-income limits are the most constraining factor as they prevent standard housing loan applicants from obtaining the maximum value of a loan.

Interest rates for new mortgages have increased slightly but are expected to have only a limited effect on demand. The average rate has moved from an historical low of 2.1 % in November 2016 to 2.6 % in September 2018 in line with the increase of the 2-weeks repo interest rate from 0.05 % to 1.75 %. Thus, new borrowers could face higher debt service costs due to higher mortgage rates and the fact that, until recently, their incomes have grown more slowly than housing prices. The new debt-service-to-income limit and the recommendation that lenders should assess clients' debt servicing capacity for a scenario of a 2 pps lending rate increase should protect future borrowers. Mortgage rates are still relatively low and attractive for clients, both in terms of consumer price inflation and income growth.

Graph 3.2.5: **Housing supply (4 quarters aggregate)**



Source: Czech Statistical Office (CZSO)

Recent data on started dwellings and building permits indicate a drop in the coming quarters (Graph 3.2.5)**.** The number of completed dwellings grew by 4.6 % year-on-year in 2017 based on the nationwide average, but declined by 4 % in Prague. The completion of dwellings accelerated in the three first quarters of 2018 and reached a 20.2 % year-on-year growth in Q3-2018. As a result, figures on construction output and investment in construction obtained from the national accounts have been buoyant during that period. These dynamics may change, as the number of started dwellings decelerated in 2018 and its year-on-year growth rate turned negative (-1.6 %) in Q3-2018. Moreover, labour shortages and associated wage pressure are becoming a particularly acute constraint in the construction sector.

Burdensome planning procedures continue to limit housing supply. Demand has continuously outstripped supply in some regions, particularly in Prague and other large cities, contributing to the increase in house prices. Although completion of new dwellings is enough to absorb the low demographic growth of the country, household size fell to 2.37 persons in 2017 ([17]). Meanwhile, the expansion of Airbnb and other shared accommodation companies helps to explain the rise of real estate prices in Prague. Because of sustained housing demand growth, sufficient supply could mitigate upward pressures on prices and affordability.

The flow of newly issued building permits remains far below historic averages. The number of building permits for dwellings issued in 2017 was 3.4 % higher than in 2016 but was the fifth lowest in the last 20 years. Although the trend has been positive since 2015, the outturn of 2017 noticeably decelerated compared to 2016 (7.3 %). The outlook is not positive, as 2018 is expected to end in the red (-3.1 % year-on-year growth in Q3-2018). In this context, a new construction law is under preparation (see Section 3.4). The regulatory burden is also augmented by regional disparities and planning rigidities. A new metropolitan plan for Prague is under discussion, to replace the old one adopted back in 1999. On average, 21 procedures need to be undertaken to receive a building permit in the country, compared to 12.5 across OECD countries (World Bank, 2018a).

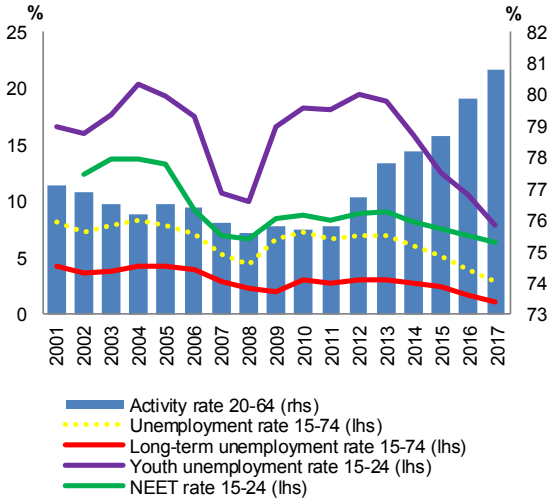
([17]) Between 2012 and 2017 the number of households increased by around 117 000, while the population growth was around 80 000.

3.3. LABOUR MARKET, EDUCATION AND SOCIAL POLICIES

Labour market

The Czech labour market is one of the best performers in the EU but is increasingly tight. The employment rate of those aged 20-64 has continued to rise and reached 80.0 % in Q3-2018. The activity rate reached a new peak of 81.9 % in Q3-2018. The unemployment rate is the lowest in the EU, at a record low of 2.1 % in Q4-2018. Long-term unemployment (0.7 % in Q3-2018) and youth unemployment (7.6 % in Q3-2018) have declined to below pre-crisis levels. The share of young people (aged 15-24) neither in employment nor in education and training declined from 7.5 % in 2015 to 6.3 % in 2017.

Graph 3.3.1: **Labour market developments**



Source: European Commission

Labour shortages can limit economic growth. The job vacancy rate, reflecting the unmet demand for labour, was one of the highest in the EU in 2017. It grew from 3.6 % in Q2-2017 to 5.9 % in Q3-2018. The number of job vacancies was more than twice as large as the number of unemployed people in Q3-2018. It increased more than eightfold since 2010 to 270 588 in Q3-2018. Shortages are especially pronounced in manufacturing and construction - in Q4-2018 45 % of manufacturers cited labour shortages as a factor limiting production ([18]) and investment (EIB, 2018). The country has the highest share of enterprises in the EU (79 %) reporting difficulties in hiring ICT specialists.

Expected demographic changes will have a significant impact on the labour market and public finances. The size of the working age population has been gradually declining, falling from 7.4 million in 2010 to 6.9 million in 2017. Until recently, the employment rate increased due to declining unemployment and increasing activity rates in view of high demand and wage increases. While the decline in working-age population cannot be eliminated, its impact can be mitigated and the potential labour force increased by tapping into the labour force potential of those less active, including mothers of young children, the low-skilled, older workers, the people with disabilities and Roma. Foreign workers could also help alleviate labour shortages.

The labour market expansion can improve the participation of underrepresented groups. Women are overrepresented among the inactive, having an employment rate well below that of men (70.5 % vs 86.3 % in 2017). These differences are higher among women younger than 40. The share of women choosing inactivity due to care is one of the highest in the EU (84 % of the inactive women aged 25-34 and 70 % of those aged 35-44). The activity rate of the low-skilled (12.1 % of the labour force) has stagnated at around 30 % since EU accession and has not changed, despite the economic boom (Graphs 3.3.2). Their employment rate increased to 49.2 % in 2017 but remains below the employment rate of medium- (79.4 %) and high-skilled (84.2 %) groups. The employment rate of older workers (55-64), at 62.1 %, lags behind that of younger workers (86.7 % for those aged 25-54), as does their activity rate (63.6 % versus 89.1 %). There is also a large employment gap between people with and without disabilities (32.8 pps compared to the 25.8 pps at EU level).

Female labour force participation falls with childbirth, contributing to the gender employment and pay gap. The employment gap between women with a child below the age of six and women without children was 48.3 pps in 2017, the highest at the EU level. Evidence suggests that gender inequalities persist throughout their career, as the average hourly wage of a man in 2016 was 21.8 % higher than that of a woman. Part of this difference suggests a potential important role for gender discrimination.

([18]) European Business and Consumer Survey

Box 3.3.1: Monitoring performance in light of the European Pillar of Social Rights

The European Pillar of Social Rights is designed as a compass for a renewed process of upward convergence towards better working and living conditions in the EU. It sets out 20 essential principles and rights in the areas of equal opportunities and access to the labour market; fair working conditions; and social protection and inclusion ([1]).

SOCIAL SCOREBOARD FOR THE CZECH REPUBLIC		
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24)	Better than average
	Gender employment gap	To watch
	Income quintile ratio (S80/S20)	Best performers
	At risk of poverty or social exclusion (in %)	Best performers
	Youth NEET (% of total population aged 15-24)	Best performers
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64)	Best performers
	Unemployment rate (% population aged 15-74)	Best performers
	Long term unemployment	Better than average
	GDHI per capita growth	On average
	Net earnings of a full-time single worker earning AW	To watch
Social protection and inclusion	Impact of social transfers (other than pensions) on poverty reduction	Better than average
	Children aged less than 3 years in formal childcare	Critical situation
	Self-reported unmet need for medical care	Better than average
	Individuals' level of digital skills	Better than average

Members States are classified according to a statistical methodology agreed with the EMCO and SPC Committees. The methodology looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories (from "best performers" to "critical situation"). For instance, a country can be flagged as "better than average" if the level of the indicator is close to EU average, but it is improving fast. For methodological details, please consult the draft Joint Employment Report 2019, COM (2018)761 final. Data update of 29 January 2019.
NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

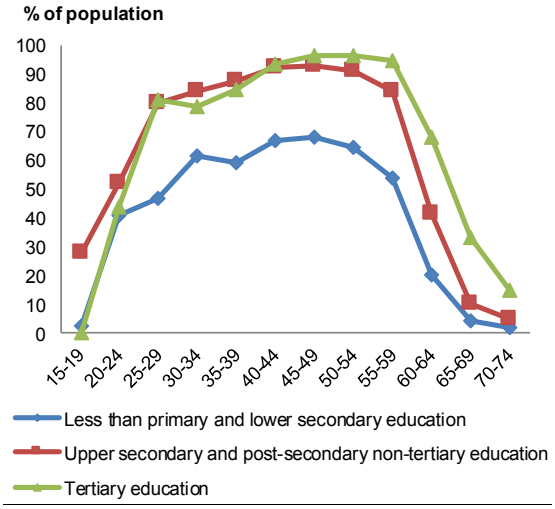
The Czech Republic performs well on most indicators of the Social Scoreboard supporting the European Pillar of Social Rights. The Czech Republic has the lowest level of unemployment in the EU (2.1 % in Q4-2018) and long-term unemployment and youth unemployment have further declined to below pre-crisis levels. The risk of poverty or social exclusion and the degree of income inequality are among the lowest in the Czech Republic. However, the risk of poverty would increase by at least 4 pps if indebtedness was taken into account. Challenges remain in relation to the equality of opportunities. In education, socioeconomic background strongly affects student performance. The quality of the education system could be promoted by policies to ensure the inclusion of vulnerable groups, to increase the attractiveness of the teaching profession and to increase participation in adult learning.

The Czech Republic combines a low participation in early childhood education and care (4.7 % of children younger than 3 years in 2016) with a high gender employment gap (the employment rate of women is 15.8 pps below that of men, for an EU average of 11.5 pps). In the tightening labour market and amid significant gender inequality, the provision of affordable childcare and reducing the tax wedge for single earners can be important policies, supporting the Pillar principles on 'work life balance' and 'childcare and support to children'.

The Czech Republic has been undertaking reforms and using the support from the European Social Fund (ESF) to substantially increase the availability of childcare. Compulsory participation in pre-school for children aged 5 and the entitlement for a place for children from the age of 3 have been introduced. Altogether approximately 18 000 new places in childcare facilities were created with the support of EU funds over the last three years, which reduced the shortage by half. Moreover, an ESF pilot was up-scaled for micro-nurseries for children from 6 months to 4 years of age and more will be built in future. Further plans include legislation changes and financing from the national budget to make new types of childcare facilities sustainable and to broaden the creation of places for children younger than 3 years.

([1]) The European Pillar of Social Rights was proclaimed on 17 November 2017 by the European Parliament, the Council and the European Commission: https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles_en

Graph 3.3.2: **Employment rate by age and education level in 2017**



Source: European Commission

Parental leave rules, lack of formal childcare and caring responsibilities result in women's long career breaks. Long parental leave (rarely taken by men) and a lack of affordable childcare contribute to lower female labour market participation. The Social Scoreboard of the European Pillar of Social Rights flags the formal childcare enrolment of children aged 0-3 (4.7%), which remains significantly below the Barcelona target of 33%, as a critical situation.

Public spending on family benefits is above average but childcare costs are high. While cash benefits and tax-credits are relatively high, public spending on services such as childcare is only half of the EU and OECD averages. In the past two decades, the figure has hardly changed, hovering around 0.5 % of GDP. Families have to bear high out-of-pocket childcare costs: at 17 % of the average household earnings, the cost is significantly higher than in many of the neighbouring countries ([19]). For single parents earning below the average wage, the net cost goes as high as 21.4 % of their earnings, one of the highest rates in the EU ([20]). A secondary earner currently faces tax disincentives to work, as the primary earner loses the dependent spouse allowance when the secondary earner has an annual income above CZK 68 000. Together with the cost of childcare, this helps explaining the low female labour market participation.

Policy responses, such as increasing the number of childcare facilities, are promising. By November 2018, EU funds had already supported 850 child groups with a capacity of more than 11 000 places for children from 1 to 6 years, 276 places in micro-nurseries (for children aged 6 months to 4 years) and almost 5 000 in children's clubs were created. Despite this significant improvement, this capacity was insufficient to meet the estimated unmet demand for childcare of 14 000 children below 3 years old in the 2017/2018 school year (Hora et al., 2018). Thus, further EU funding is planned (including on infrastructure) with existing facilities financed from the national budget.

More flexibility in parental leave may increase female labour market participation. The recent proposal to make the maximum duration of parental leave more flexible and to introduce 'shared jobs' to allow mothers with small children and other carers to work part-time is a step in the right direction. However, there is scope for investment in further measures in this area.

Sufficient and coordinated provision of formal accessible, high quality and sustainable long-term care services remains a challenge. Their underdevelopment can be another major impediment for women to stay in employment. The three-month caretaker leave introduced in June 2018 has not met expectations as only 400 have benefitted from the new right, far below the 30 000 target originally estimated by authorities.

A complex combination of socio-economic factors negatively impacts the labour market performance of the low skilled. Low-skilled workers represent a relatively small group (7 % of the workforce in 2017). However, with an unemployment rate of 12.6 % and an employment rate of 43.7 %, they perform below average when compared to the rest of the population and the low skilled in other EU countries. This group faces disincentives to work such as the high tax wedge on low earners, especially in the case of women with young children. Their participation tax rates are as high as 50 % (see Section 3.1). Moreover,

([19]) Net childcare costs for a two-earner two-child (aged 2 and 3) couple family with full-time earnings at 100+67 % of earnings, as a % of average earnings in 2015 (OECD).

([20]) Net childcare costs for a two-child (aged 2 and 3) single-parent family with full-time earnings at 50 % of earnings, as a percentage of average earnings in 2015 (OECD).

the low skilled are often employed in low paid jobs and under poor working conditions. Health and abuse issues and social background create more obstacles to employment.

Indebtedness is an important impediment to employment. It is high in regions with the largest proportion of low-skilled people. Overall, 830 000 people were affected by enforcement orders in 2017 (9.7 % of people over 15 years). In some regions, like Ústecký, this rate is over 20 %. This can generate a high prevalence of undeclared work. When entering declared employment most of the salary is seized to repay the creditors, creating a financial motivation for workers not to declare their income. On the employers' side, addressing creditors' requests increases their administrative burden, decreasing the motivation for regular employment (Hora et al., 2018).

Lack of specific measures, low participation in training and subsidised jobs further hinder employment of the low skilled and the people with disabilities. The job subsidies do not compensate for the lack of motivation on both the employer and unemployed side. Most labour market interventions do not specifically address the issues of the low skilled and of people with disabilities. While (often used) public works have proved insufficient, other active labour market policy programmes are not robust enough. Investment in a comprehensive individualised approach, taking into account health conditions and other disadvantages (old age, low skills, family obligations, and abuse issues), tailored training to overcome skills barriers, and effective counselling to address indebtedness in combination with social work, is needed.

A limited range and inefficient targeting of active labour market policies deepen the segmentation on the labour market. The effectiveness of the three principal programmes for the unemployed were analysed in a study covering the 2014-2016 period (Horakova and Sirovatka, 2018; Hora et al., 2018). Overall, training programmes as well as subsidised jobs in the private sector tend to target those with fewer barriers in the labour market instead of supporting those most in need. Only one in five participants in subsidised jobs were long-term unemployed. Instead, the groups further from the labour market, with combined handicaps, are mostly placed in public works although they do not contribute to permanent employment. The increase in the number of social enterprises is promising for integration of underrepresented groups, although the regulatory framework is still lacking.

The business model of public employment services does not provide individualised support to vulnerable groups. A single point of contact for distributing employment and social benefits and services was established. However, its potential for outreach and activation is not fully used, also due to the limited interoperability of the IT platform, which represents room for investment**.** The individualised approach for registered jobseekers has not been implemented as a universal measure and depends largely on ESF funding. A basic form of profiling is applied but has a more intuitive than formalised or systematic nature. Investment in modernising of public employment services and a broader range of measures would offer the right intervention mix to jobseekers.

A systemic framework for cooperation between public employment services and other stakeholders is lacking. Setting common objectives for public employment services, non-governmental organisations and other partners in the labour market and investing in developing their capacity could tackle weaknesses in addressing barriers faced by underrepresented groups.

Higher activity rates for older workers can tackle labour shortages but their skills may need to adapt. A declining labour force means that workers will need to adapt to longer careers. This implies investment in health and adapting their skills to the changing work environment. Work places also need to be adapted to age-related needs. Therefore, tailored measures in employment, health, social work and pension reforms are needed to face the expected demographic change (with the share of those aged 55-64 years increasing from 19.5 % in 2016 to 22 % in 2030) (European Commission, 2018b).

The tight labour market and administrative burden induces risks of increasing undeclared work. Many companies react to the situation by hiring workers illegally, mostly from non-EU countries. The association of employment agencies estimate that around 250 000 people are working

illegally, even though only 2 900 illegal workers were detected last year. The bureaucracy related to work and residency permits may push law-abiding immigrants into illegal work. Their situation is often not regularised due to the absence of appropriate employment permits. The 'employment card' approach, combining both the residence and work permit, resulted in a slight decline in, the still high, administrative costs. Foreign workers also often work without proper contractual arrangements, when their employment relations at least border on regular long-term employer-employee relations. Investment in their integration, accelerating immigration procedures, reducing the bureaucracy and modernisation of labour inspectorate could help to address the issues.

Preparing the labour market for technological change is high on the political agenda. Investment needs to remain vigorous, underpinned by a revival of construction activity, greater use of EU funding, the need to compensate for labour shortages and a general trend towards industrial automation. Indeed, investment is needed to support the transformation of the national economy towards higher-value added production, which can increase labour productivity and innovation. This in turn could help address the problem of relatively low wages while maintaining competitiveness.

Qualitative skills mismatches, due to future automation and robotisation, could arise, notably in the digital sector. Within the next 15 years, the number of jobs disappearing due to technological change (450 000) is expected to be compensated by demographic prospects (-400 000 people). The new jobs will require new competences and large investment particularly in digital skills. According to the Digital Economy and Society Index, only 24% of Czechs have above basic digital skills, while the EU average is 31%. Deployment of high-level skills and closer cooperation with the business sector would enable the diffusion and uptake of innovation and industrial transformation. Investments in training and education could facilitate such economic transition and increase productivity of workers. Promoting adult learning and lifelong learning under the Government's Strategy and Action Plan Work/Education 4.0 can support employability and help to avoid a structural qualitative mismatch. For example, the ESF-funded project PRIM promotes an education programme in basic coding and robotics and, if successful, can become standard in all schools by 2020.

A comprehensive skills strategy could help to adapt the labour force to future changes. Such a strategy should also target non-EU nationals, as this could contribute to further reducing labour shortages. Although various initiatives were developed over recent years, these have not yet grown into a genuine comprehensive system for producing and interpreting skills intelligence. In addition, a single national Skills, Competences, Qualifications and Occupations classification has not been finalised (see Country Report 2018).

Plans to further develop vocational education and training have not yet been implemented. Investment in the modularisation reform of the curricula could increase the flexibility and adaptability of vocational education and training systems to changing labour market needs. Furthermore, remunerating apprentices could help prevent early programme leaving.

Social partners play a strong role in raising awareness about labour and skill shortages. Stakeholder engagement and local and regional dialogues between policymakers, employers, and education and training providers are key to identifying needs and increasing the relevance of vocational education and training and higher education. Investment in strengthening the social dialogue could help to achieve the objectives.

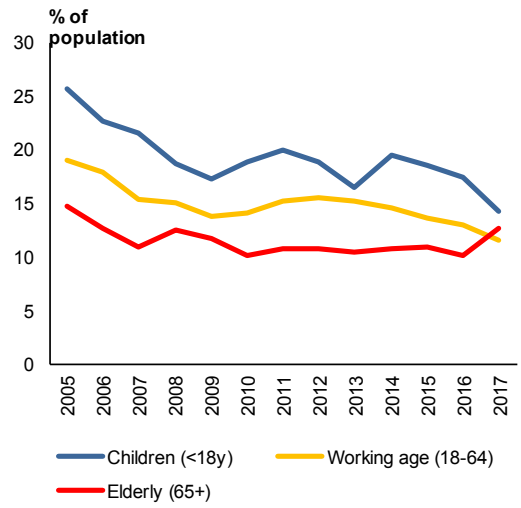
Social policy

The share of people at risk of poverty or social exclusion (AROPE) is low but differences across population groups and regions have increased. The AROPE is one of the lowest in the EU, having decreased further in 2017 by 1.1 pp. to 12.2 %. The country performs above EU average when it comes to the adequacy of its minimum income scheme, which in 2016 represented around 60.6 % of the poverty line and 56.5 % of a low wage earner (compared to an EU average of 57.5 and 46.1 %) ([21]). However, among the elderly (aged 65+), the AROPE share increased from 10.1 % to

([21]) According to the results of the 2018 Benchmarking exercise in the area of Minimum Income of the Social Protection Committee of the European Commission.

12.6 % (Graph 3.3.3). Moreover, regional differences are high, with the highest levels seen in the Moravskoslezský and the Severozápad regions. There is also a worsening trend in these regions on other indicators such as education outcomes, the number of socially excluded localities and persons living in them and access to health care.

Graph 3.3.3: **Age groups at risk of poverty or social exclusion in 2017**



Source: European Commission; EU-SILC

The increase in private indebtedness could potentially increase the risk of poverty. If taking into account enforcement proceedings and insolvencies, the proportion of poor people ([22]) would increase by about 4 pps (or 300 000 adults). However, the statistics consider income before debt deductions, which is higher than the actual take-home pay. If indebtedness was taken into account, higher levels of poverty would be observed, notably in more deprived regions.

Over-indebtedness and property seizures have multiple causes, notably unpayable mortgage loans. High mortgage loans related to rising housing costs (see Section 3.2), high consumption on credit, failed business projects, lack of social capital, poor financial literacy, and loss of income from economic activity are among the causes on the debtor side. As for the creditors, insufficient screening of loan applicants is highlighted. Lastly, the institutional set-up via arbitration clauses, difficulties in penalising usury, regulation allowing deliberate abuse of the system by creditors, high enforcement charges for minor debts and difficulties in implementing a debt-relief scheme, hinder preventing or tackling over-indebtedness.

The legislation on debt-relief, under discussion for more than two years, was adopted in a lighter version. While it can still improve the debt relief procedure, two major changes to the current legislation were not adopted. The new legislations keeps the requirement to pay off at least 30% of one's liabilities within the 5 year debt relief period. The proposal to make the debt relief mechanism more flexible for debtors who are able to pay higher instalments was not included.

There is a growing number of socially excluded localities. Housing exclusion and homelessness, high indebtedness and unemployment affect the most vulnerable groups, including Roma. The number of socially excluded localities has almost doubled in 2006-2014 but in the Moravskoslezský and Karlovarský regions it has more than tripled (see Country Report 2015). Recently, the inhabitants of socially excluded localities have been moving to more remote municipalities with less functional infrastructure.

Housing exclusion and homelessness are increasing among low-income households, while related policies are lacking implementation. The draft Act on Social Housing, which was supposed to set eligibility and quality criteria for access to social rental housing, was not adopted in 2018. The current legislation does not sufficiently address the lack of affordable and quality social housing and its negative social impact and there are no plans to revise it until 2023. Instead, the government plans to replace it with a subsidy-credit programme called 'Construction'. This program would finance social housing for people at risk of exclusion, but above all accessible housing 'in the public interest', e.g. to attract bottleneck public professions in the municipalities. However, the proposal lacks an integrated approach combining social services with housing, despite the proven success of piloted ESF projects, such as Rapid Rehousing. Regional social disparities were also supposed to be addressed in a coordinated approach of the 'RESTART' strategy. However, implementation of the social aspects has been limited due to lack of political support. Further investment, including in food and basic

([22]) Calculated using adult population data.

material assistance for the socioeconomic integration of the socially excluded is also needed.

Health status has improved recently but there are regional disparities, correlating with the level of unemployment, among other things. While overall self-reported unmet medical needs are among the lowest in the EU, the unmet needs due to distance to health care are above the average. Overall health status is still below the EU average and varies significantly by region (e.g. life expectancy at birth for both men and women can differ by more than 4 years). These differences are largely due to socio-economic and behavioural risk factors such as alcohol consumption. There is a significant negative correlation between (long-term) unemployment, poor health/disability and lower life expectancy (OECD, 2018; Hora et al., 2018). To contribute to better health outcomes, the health system would benefit from further investment in primary care and integrated care including necessary infrastructure notably in laggard regions (see Section 3.1).

Education and skills

The general government expenditure on education as a share of GDP decreased and it is now below the EU average (4.5 % vs 4.7 % in 2016)**.** Expenditure per student at all education levels was among the lowest in the EU in 2015. Teachers' and school principals' salaries are among the lowest both internationally and compared to other workers with tertiary education. The 15 % salary increase initially planned for September 2018 was postponed to January 2019, while the Chamber of Deputies and employers call for further increases. Announcements on increases do not mention a timeline. Public funding for higher education has increased in 2019 with scope for further investment.

The teaching profession faces severe challenges. These include shortages, demographic challenges, weak education governance, low prestige, low salaries and limited development opportunities. There is a shortage of qualified teachers in particular in primary education. Besides low salaries, there is no career system for teachers, leading to a flat career structure. Teachers also do not receive sufficient training in the classroom during their initial education. These elements contribute to the high drop-out rate during the first years of teaching. Low participation in continuous professional development is reportedly linked to a lack of incentives and low impact on careers as well as being of little relevance to teachers' needs. This relates particularly to differentiated types of teaching according to pupils' needs, poor offer of distance-learning and absence of compensation for replacement teachers.

ESF projects support teachers at the beginning of their career and their continuous professional development. They also contributed to finalising standards for university programmes that prepare future teachers. A special fund enables education for more future teachers.

While below the EU average, the early school leaving rate has continued to increase since 2010. At 6.7 % in 2017, the rate exceeds the 5.5 % national target for 2020. Wide regional disparities and a high proportion of early leavers among Roma pupils (57 % in 2016 among the Roma families that participated in the survey) call for strengthened analysis and targeted measures (see Country Report 2018, FRA, 2016). This trend contrasts with the steadily decreasing EU average. The most affected schools have less qualified teachers and high staff turnover. In 2018, a study (Bicakova and Kaliskova, 2018) showed that young people dropping out of school are attracted by the current easy access to paid employment. However, they often end up in low paid, low quality and short-term jobs. Thus, they add to the number of the low-skilled unemployed. Incentives to attract young people back to education, as well as prevention measures and second chance education are under discussion.

Socio-economic inequalities in school outcomes have increased in recent years. The share of low achievers in science and reading among 15-year-olds has risen significantly since 2012. The gaps between socio-economic groups and between schools are increasing and are reflected in regional disparities. The selectivity of the school system and early tracking tend to increase inequalities. Only 18 % of children whose parents did not attain tertiary education obtain a tertiary degree and, in general, are less likely to graduate from vocational programmes. The authorities are reviewing the national curricula to increase effective equal opportunities and better focus on skills needed for future jobs. As there are no incentives to attract

qualified teachers to disadvantaged schools (OECD, 2016), better support could be beneficial.

While being positive overall, the impact of the inclusive education reform on the participation of Roma children in mainstream education remains limited. The reform is a major concerted effort (see Country Report 2018; Centre for Policy Studies, 2018) but the government reported that 10.3 % of Roma elementary school age children attend special schools or special classes, 8.3 pps more than in the case of elementary school pupils as a whole. Roma pupils represent 29.1 % of all pupils in a programme with light mental disability. Free individual support measures for pupils with special educational needs, including those from disadvantaged socio-economic backgrounds, were introduced to enable them to participate in mainstream education. The 2017 evaluation by the School Inspectorate indicates that the reform has improved the support for these pupils, reaching around 98 % of education providers at all levels. In addition, a survey of school professionals found that 49 % of school principals believe they can now provide better support to these children. However, the recruitment of teaching assistants is a challenge, with 21 % of schools failing to find qualified candidates. Some regional and local authorities resist transforming former practical schools for political reasons. Investment in skilled pedagogical staff, training tools, teaching materials or technological equipment is needed to meet the reform objectives.

Participation in early childhood education and care continues to catch up with other Member States. It is estimated that only about 34 % of Roma from the age of four participate in this level of education (FRA, 2016). Under current conditions, it is crucial to maintain the recently established right of all children over 3 years to attend pre-school and, subsequently, to guarantee places in kindergartens. The highest proportion of home-school pupils was registered in the Usti region, where, children would benefit most from being educated at school in an inclusive environment. The full support of municipalities is important to ensure a growing participation and an effective implementation of the law.

The increase in tertiary education attainment has been among the fastest in the EU in the past decade. This has been the case in particular for women. The employment premium of a tertiary education degree is the highest in the EU but completion rates are low (European Commission, 2018c). Only about 1 % of students receive a 'social scholarship' although such incentives may contribute to reducing inequalities in access to higher education (European Commission/ EACEA/ Eurydice, 2017). Also, the scholarship amounts for Ph.D. students are below the EU average.

The 2016 higher education reform aims to upgrade quality assurance and a new funding system has been implemented. The system aims to improve quality, completion and diversification of programmes and institutions (Country Report 2018, European Commission, 2018c; European Commission/ EACEA/ Eurydice, 2018). While there is no systematic use of graduate tracking surveys, the Czech Republic is one of the countries piloting the European graduate survey in 2018 and 2019, which may yield data on the quality of the graduate labour market and social outcomes.

The implementation of the 2015-2020 strategy for digital literacy faces delays. Every second school has a teacher of information and communications technology without relevant qualifications and equipment is outdated. Authorities plan further investment in digital infrastructure and related skills.

Investment needs

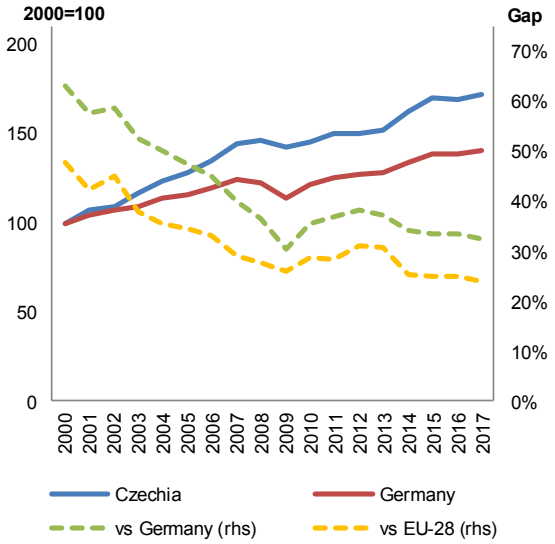
Demographic change and existing socioeconomic disparities require increased investment in tailored active labour market policies, affordable childcare, and education and training. Labour shortages and future skills mismatches require investment in human capital and the adaptation of the labour force, through targeted active labour market policies, adult learning and social enterprises. Investments in the teaching profession and in inclusive education are needed to tackle socio-economic inequalities in school outcomes. Using the full labour potential requires matching investment in childcare, social, health care and long-term care services.

3.4. COMPETITIVENESS REFORMS AND INVESTMENT

3.4.1 Competitiveness and productivity

Labour productivity has been growing fast despite a slow down over recent years. Between 2000 and 2017 gross value added (GVA) per worker increased by around 72 %. However, in the last 3 years the cumulative growth was as low as 2.5 %. As shown in Graph 3.4.1, the productivity gap between the Czech Republic and Germany shrank from 63 % in 2000 to 30 % in 2009. Nonetheless, during the financial crisis, the trend reversed and the gap reached 38 % in 2012 before decreasing again gradually to around 33 % in 2017. The gap versus the EU also halved reaching 24 % in 2017, among the lowest levels in the region together with Slovakia (23 %) and Slovenia (27 %). The growth of gross value added per hour worked has been mostly in line with the EU and euro area averages but more subdued than in some neighbouring countries since 2008. While Poland and Slovakia had cumulative increases of 13 %, the Czech Republic only witnessed a total growth of 8.5 % in 2012-2017 (OECD).

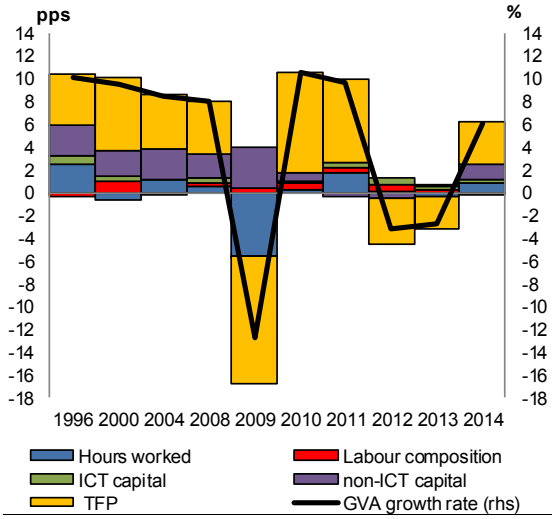
Graph 3.4.1: **GVA per worker and the productivity gap (in PPS)**



Source: AMECO, European Commission

The growth of Total Factor Productivity (TFP) has been less notable, pointing to emerging weaknesses in the country's growth model. Between EU accession and the start of the financial crisis, TFP saw an annual increase of around 3 %. However, after 2008 the annual growth became very volatile. According to the IMF (2018), the TFP gap between Germany and the Czech Republic is around 40 %, a figure that remained more or less constant since 1997. The gap varies across sectors with the manufacturing and trade sectors showing a smaller gap. Until the financial crisis, TFP growth was boosted by foreign direct investment (FDI), the availability of a cheap but skilled labour force, and technology imports. The lower levels of growth after 2009, however, may signal that the pre-crisis growth model may be losing steam. As the technology imports have not been replaced with home-grown innovation, the country may risk being caught in the middle-income trap (European Commission and EIB, 2018). The contribution of ICT capital to GVA has also been very low. In terms of volumes, the cumulative increase between 1996 and 2014 was of around 9 %, contributing with less than 0.5 % to the annual GVA growth. Between 2008 and 2014, the cumulative increase was as low as 2 %. Nonetheless, in the automotive industry the increase was close to 11 % (EU KLEMS).

Graph 3.4.2: **Breakdown of contributions to GVA growth in the manufacturing sector**



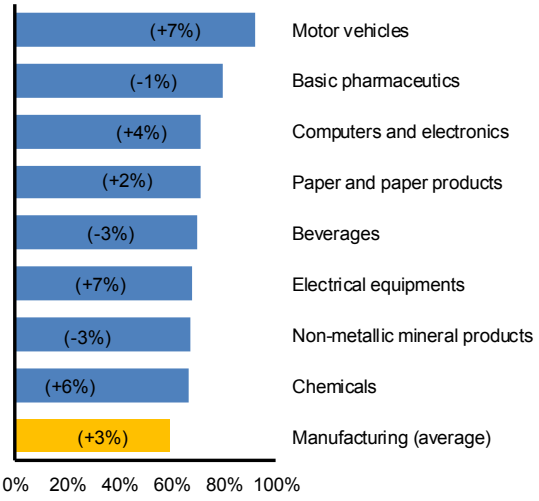
Source: EU KLEMS Growth and Productivity Accounts

The contribution of manufacturing to the economy remains one of the highest in the EU. Driven by a high stock of FDI, the contribution of manufacturing to GVA is significantly above the EU average. According to the IMF (2018), although its proportion in employment has declined, manufacturing had the highest productivity growth among the major sectors since 1996. Most of this growth was generated by the contribution of non-ICT capital and by TFP.

Nonetheless, while TFP has been much higher than in other sectors, it has been more sensitive to the financial crisis, with significant drops witnessed in 2009 and 2012-2013. Similarly, the contribution of ICT capital has been negligible (Graph 3.4.2).

Productivity developments are strongly related to the openness of the economy and the inflows of FDI. While FDI inflows have been significantly lower compared to the pre-crisis period, the Czech Republic continues to have one of the highest stocks of FDI in the region. Two thirds of the total FDI stock is directed to services with the rest mostly focusing on manufacturing. Motor vehicle manufacturing represents around 8 % of the FDI stock and a quarter of all manufacturing investment. Nonetheless, there are large regional differences, as more than 60 % of all FDI is concentrated in Prague and Central Bohemia.

Graph 3.4.3: **Value-added of foreign-controlled firms as a share of total value added in specific manufacturing sectors in 2015**



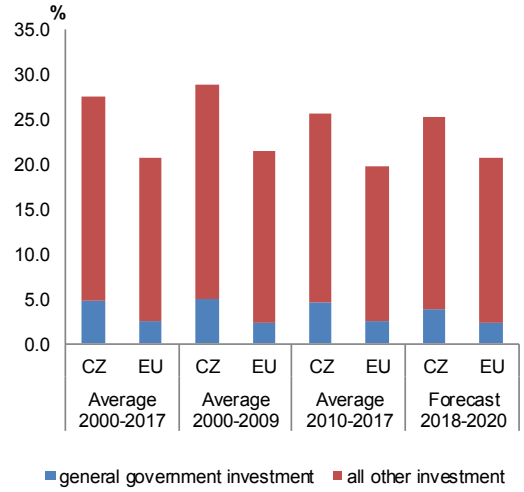
(1) The compound annual growth in 2011-2015 between brackets
Source: Eurostat FATS database

Foreign investment is a major contributor to the economy but spillovers remain limited. Almost one third of all employment is generated by FDI, more than in any other country in the region. Foreign firms account for around two thirds of value-added in the manufacturing sector, while their proportion exceeds 90 % in the automotive industry (Graph 3.4.3). They have around 25 % higher costs per employee than the national average, but also significantly larger labour productivity and turnover per employee. The gap between foreign and domestic firms in terms of value added and labour productivity has remained constant since 2008, suggesting limited spillovers in terms of technology and knowledge transfer (2018 Country Report; Pavlinek & Žížalová, 2016; Mýtna Kureková, 2018). While there were some indirect spillovers (i.e. increased requirements and competition from foreign firms), many domestic firms provide low value added products and services in the global supply chains. This may suggest an investment need to support the uptake of technology and increase the innovation performance of domestic firms.

Addressing the investment needs in education, infrastructure and innovation can strengthen the country's long-term growth potential. Due to labour and demographic constraints impacting the manufacturing-intensive economy, further investment in education and upskilling is critical for ensuring that the country is ready for future technological changes (see Section 3.3). Furthermore, subpar road, railway and broadband networks hinder the business development in peripheral regions and can increase regional disparities, despite the advantages in geographical proximity. Increased focus on the home-grown innovation environment should boost the performance of domestic firms and upgrade them into the global supply chains, while reducing the dependency on foreign investment. The decarbonisation of the energy intensive economy and measures to address the negative environmental effects of economic development also require increased public and private investment.

In the non-financial sector, SMEs remain a backbone of the economy. However, while accounting for two thirds of total employment in the sector, their productivity is below that of larger, mostly foreign companies and half the EU average (see 2018 Country Report). While the authorities increased the rollout of funds and lending guarantee programmes, SMEs will need further support to enter and remain competitive in global markets. Access to finance has improved but entrepreneurship remains below the EU average (see 2018 SBA Fact Sheet) and may need alternative forms of support.

Graph 3.4.4: **Investment in the total economy**



Source: European Commission, AMECO
Note: Data for 2018-2020 is based on Commission 2018 Autumn Forecast

The level of investment has been historically high. With an annual average of 27.5 % of GDP between 2000 and 2017, the Czech Republic had one of the highest levels of investment in the EU. In the medium term, the Commission Autumn 2018 Forecast suggests this level will drop to around 25 % of GDP, still above the EU average (Graph 3.4.4). At around 5 % of GDP, the level of general government investment has also been above the EU average in 2000-2017, but is forecast to drop to around 4 % up to 2020.

A harmonised rollout of financial instruments is vital for addressing all investment needs. As interest rates for commercial loans are increasing and the Czech Republic is to receive less EU funds in the future programming period, there is room for financial instruments to be used more broadly, mainly in the form of preferential loans or in combination with available grants. The use of venture capital, business angel funds and revolving funds is also rather low. Most investment needs are in areas such as support to SMEs, start-ups and social entrepreneurship, student mobility, housing, regeneration of brownfields, energy efficiency, digitalisation, broadband networks and waste management. In addition, the European Fund for Strategic Investments is not fully used to address needs related to revenue-generating and cost-saving activities. In this regard, there may be a need to develop appropriate structures and introduce demand-side measures to increase the attractiveness of financial instruments

A large administrative and regulatory burden may hurt further investment. According to the 2018 Flash Eurobarometer 2018, 69 % of Czech firms see administrative and regulatory burden, other than costs, as a major obstacle to investment. Fast-changing legislation and complex administrative procedures remain major problems for doing business. The cost for enforcing contracts, frequent changes to the tax and labour regulations (EIB, 2018) and difficulty in obtaining construction permits are all seen as major obstacles for the economy, potentially deterring possible domestic and foreign investors (see Section 3.4.4).

Transport and digital infrastructure

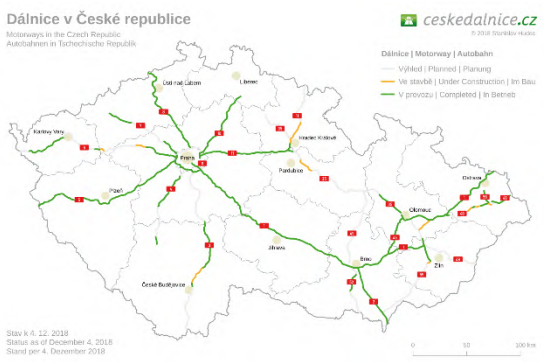
The transport infrastructure is incomplete. The Czech Republic is a significant transit country ([23]), which puts great demands on the domestic infrastructure and its multimodality. However, transport investment as a percentage of GDP dropped by 12 % between 2010 and 2015, bringing it below the EU average. Consequently, the country ranks low in the 2016 EU Transport scoreboard ([24]), scoring particularly low on road infrastructure with gaps linked to coverage, quality, standards, and low carbon aspects, e.g. the percentage of renewable energy in transport and the take-up of electric vehicles ([25]). The current number of publicly available recharging points covers the needs of the existing vehicle fleet but the planned growth of the recharging infrastructure may not be sufficient to cater for the needs of the expected take-up in the vehicle market. The use of certain new forms of public-private partnership financing of transport infrastructure and well-developed governance structures, could address some of these gaps.

The completion of the Trans-European Transport (TEN-T) core network is far from being finalised. Partly due to a lack of proper strategic planning, essential parts of the TEN-T infrastructure have not yet been built or

([23]) 20 % of the intensity on the highway network is for transit.
([24]) https://ec.europa.eu/transport/facts-fundings/scoreboard_en
([25]) The Czech Republic has one of the lowest percentages of electric vehicles in new registered passenger cars. The proportion of renewable energy in transport is also declining below the EU average.

modernised. By 2016, only 55 % of the TEN-T road network and 63 % of the conventional rail network were completed. Furthermore, the railway corridors are still not fully equipped to meet interoperability and technical specification for interoperability standards. Uneven development and connectivity affect primarily the south and the northeast parts of the country (i.e.: the unfinished D3 and D35 motorways – see Graph 3.4.5). There are also major issues in terms of technical compliance with TEN-T regulation for certain core network corridors crossing the country. The government's National Investment Plan is supposed to address these pitfalls. Preliminary information suggests that the authorities plan a large allocation of funding to transport infrastructure, particularly to improve the railway and motorway networks.

Graph 3.4.5: **Motorway network in the Czech Republic**



Source: www.ceskedalnice.cz

An efficient suburban transport infrastructure can increase labour mobility and affordability of housing. While the process of suburbanisation has been developing in metropolitan areas, the suburban transport networks are lagging behind, particularly as regards the rail infrastructure. An efficient and integrated commuting system (including park & ride and car sharing systems) could potentially increase affordability of housing (see section 3.2), positive education outcomes, health and social services in the large agglomerations, while also ensuring better mobility for the labour force. Measures could be undertaken in coordination with sustainable urban mobility planning (including low emission zones in the cities). This could improve the health and safety of people affected by the breaches of the air quality standards, resulting partly from ageing commercial vehicles.

Digital infrastructure is improving but the division between urban and rural areas persists. Nearly all the households have access to basic fixed and 4G broadband coverage. While the number of households with access to fast broadband increased from 75 % in 2016 to 89 % in 2017, only 59 % of rural households are covered. Upgrading older networks based on copper infrastructure along with fixed wireless access solutions will not be sufficient for achieving the 2025 connectivity objectives. To address future connectivity needs, investment is needed in very high capacity networks (i.e. optical fibre) and appropriate demand-side measures. The auction of 5G frequencies is expected in the second half of 2019.

Research and innovation

The Czech Republic has not yet created a fully functioning innovation ecosystem based on home-grown research and development. According to the latest European Innovation Scoreboard, the country is only a moderate innovator and the differential towards the EU average worsened since 2010, notably in relation to SMEs' innovation and collaboration activities (European Commission, 2018d). The overall R&D intensity in 2017 stood at 1.79 % of GDP. Business expenditure on R&D increased from 0.77 % of GDP in 2010 to 1.13 % of GDP in 2017. However, close to two thirds of these expenditures are incurred by foreign firms. While some of these firms have set up medium and high-tech research and innovation facilities, their activities are mainly directed towards experimental development rather than industrial research. Thus, further investments are needed to improve the innovation potential of domestic firms, notably SMEs.

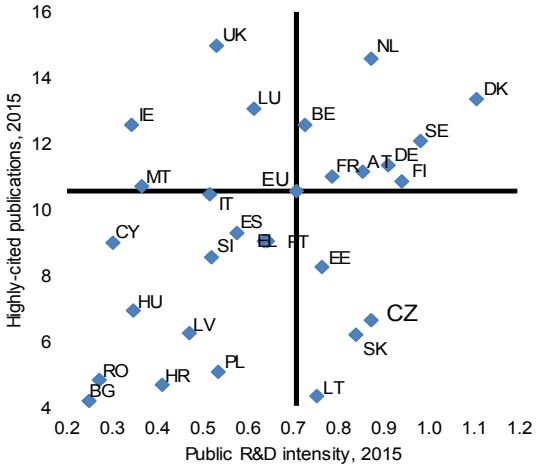
Public R&D investment lacks a coherent strategy to increase the modest research performance. Its level of intensity stood at 0.66 % of GDP in 2017 and if the current trend is maintained, the 2020 target of 1 % of GDP might not be reached. The increase in public R&D ([26]) funding was partly linked to the inflow of EU funds, suggesting this increase may not be sustainable. While a large percentage of EU funding was allocated to the building of research infrastructures, further investments are needed to

([26]) Public R&D intensity stood at 0.55 % of GDP in 2007.

better leverage their economic spillovers. Furthermore, institutional funding for R&D activities allocated to higher education institutions and research institutes remains low and unrelated to their performance, so far with limited impact of the new evaluation methodology.

The performance of the public science base remains modest. Although its share of the top 10 % most cited publications and international co-publications kept increasing since 2000, the country underperforms given its level of public R&D investment (Graph 3.4.6). Even in scientific areas where the country has historically been specialised ([27]) the performance is subpar. Besides the shortage of skilled human resources in scientific and technical fields, graduates are not systematically provided with the most relevant (e.g. soft skills) or up-to-date scientific knowledge. Consequently, further investments are needed to produce and train graduates in key fields.

Graph 3.4.6: **Highly-cited publications vs public R&D intensity as a share of GDP**



(1) Highly-cited publications are the 10% most cited scientific publications of the country.
(2) Factional counting method. Citation window: publication year plus 2 years.
Source: Eurostat, CWTS based on Web of Science database

Despite some encouraging initiatives, the low cooperation between the private sector and the academia hampers technology diffusion. Although there are examples of academia-business cooperation ([28]), this tends to occur mostly on an ad-hoc basis. Even in scientific and technological fields where the country is relatively specialised, academia-firms cooperation is not yet systematic, as shown by the share of public-private co-publications ([29]). In the absence of regulatory or funding incentives, higher education institutions and research organisations do not systematically integrate industry needs in their activities.

The financing of innovation is still under development. The National Innovation Fund, which was aimed at providing venture capital for start-ups and spin-offs, was cancelled. Instead, support to start-ups will be provided via equity investments through a fund of funds managed by the European Investment Fund. It remains to be seen whether this type of support will be appropriate for the needs of the Czech startups. On the other hand, there are currently no appropriate funding instruments supporting early-stage and proof of concept projects.

The country has not yet developed a coherent policy framework for moving up the value chain. There is scope for increasing the consistency and synergies between the competitiveness strategy, the research, development and innovation policy and the smart specialisation strategy. Recent institutional changes have led to research and innovation responsibilities being further split between different governmental bodies, with limited overall coordination. The identification of appropriate 'qualifying criteria' for research and innovation activities will be crucial for attracting higher value-added foreign investment under the forthcoming 'Investment Incentives' package ([30]). The recently proposed amendment to the R&D tax incentive does not fully address the issue of uncertainty (e.g. assessment of projects will still be performed by tax authorities instead of qualified research and innovation experts). There is an investment need to provide soft measures for firms (e.g. business support services, innovation hubs) and ensure a systematic evaluation of these instruments' effectiveness.

([27]) 'Chemistry, physics and astronomy', 'medical sciences', 'life sciences'

([28]) Skoda Auto-funded PhD programmes, Honeywell-Masaryk University cooperation in South Moravia

([29]) The share of public-private co-publications in 'engineering sciences', 'medical sciences' and 'life sciences' in 2016-2017 is lower than the EU average in those same fields.

([30]) Through an amendment of the Investment Incentives Act.

Czech companies are among Europe's top performers in e-commerce but lack advanced digital technologies. 18.4 % of the total turnover for small and medium-sized enterprises (SMEs) and 36.7 % for large companies comes from electronic sales. A growing proportion of SMEs also use e-commerce across borders at levels above the EU average. Nonetheless, only 28 % of all companies use enterprise resource planning software to share information between different functional areas and only 15.5 % use advanced cloud services. SME's ability to digitalise will be crucial for boosting their innovation, productivity, competitiveness and internationalisation. Furthermore, although the authorities are rolling out an Industry 4.0 strategy, there is limited investment in artificial intelligence, machine learning, big data or blockchain technology, activities that could upgrade Czech firms in the global value chains.

Energy, environment and climate change

Energy efficiency is improving slowly. Despite funding being available, progress towards better energy performance of buildings is slower than the EU average, suggesting more systemic problems. There is a lack of clear political leadership, as the implementation of energy efficiency policies is currently split among several public authorities. Low awareness about the wider benefits of energy efficiency is coupled with a lack of motivation to draw available public funds from subsidy programmes, due to long payback times and the administrative burden. Further investments are needed to exploit the potential for energy efficiency, especially in building renovation, including thermal retrofitting, and the shift to cleaner modes of transport. A harmonised rollout of relevant flexible investment instruments could leverage further private capital. Higher energy efficiency can reduce energy costs for both households and businesses, potentially increasing the competitiveness of the latter.

There is not yet a fully complete legal and institutional framework for supporting renewable energy projects. Technical and legal obstacles to domestic energy generation from renewable resources persist (i.e.: grid connection and charges). In the area of renewables, retroactive changes have created significant uncertainty and have resulted in higher capital costs for current and future investments as well as a negative public perception. The abolishment of support schemes in 2014 and a retroactive tax on solar energy have resulted in a static market. Furthermore, many authorities are involved in licensing processes, which increase administrative and, ultimately, investment costs. The implementation of the revised Renewables Directive, establishing best practices for the planned auctioning scheme and encouraging the uptake of small-scale renewable installations by self-consumers and communities will further stimulate more investment in the sector. In its final National Energy and Climate Plan, to be adopted by 31 December 2019, in line with the Regulation on the Governance of the Energy Union and Climate Action ([31]), the Czech Republic will provide an overview of its investment needs until 2030 for the different dimensions of the Energy Union, including renewable energy, energy efficiency, security of supply, and climate mitigation and adaptation. The information provided, including in the draft plan submitted on 31 January 2019, will further contribute to the identification and assessment of energy and climate-related investment needs.

Economic development is not sufficiently factoring in environmental protection. There are difficulties in implementing environmental policies, as the conditions for a circular economy are not fully met. The recycling of municipal waste accounted for 34 % in 2016, below the 45 % EU average, as landfilling remains the main treatment option. Decontamination and rehabilitation of industrial sites, including old and illegal landfills, are also pending. While the country is on track to meet the 2020 recycling target, much more effort will be needed for meeting the targets set for the post-2020 period.

Air pollution is particularly problematic and it might become a health hazard. This is further aggravated by the widespread use of obsolete fossil fuel boilers for heating. This also relates to the fact that coal, the largest source of carbon emissions, continues to dominate the power sector, posing a substantial threat to local air quality. Furthermore, the volumes of new built-up areas and the intensity of car traffic are increasing,

([31]) Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action

exacerbating air and noise pollution, especially in Prague. Preliminary data for 2017 shows that 9 out of 10 air quality zones exceeded the daily limit value for Particle Matter 10, up from only 4 zones in 2016 ([32]). Investment targeting air and noise pollution, biodiversity, green infrastructure in urban areas and rehabilitation of brownfield sites could alleviate part of this issue and make the urbanisation process more sustainable. It can also reduce the negative impact on health status.

Emissions of greenhouse gases from sectors not covered by the EU emissions trading system have been increasing recently. While the country is still likely to meet its 2020 target, recent emission increases (+11 % between 2014 and 2017) will make it more challenging to meet the much more ambitious and binding 2030 target. Emissions have been raising especially in the transport sector (from 7 to 20 metric tone of CO2 equivalent between 1990 and 2017) but also in areas such as refrigeration and air conditioning. A shift towards cleaner systems of transport could not only reduce greenhouse gas emissions, but also tackle key sources of air and noise pollution.

Climate adaptation and risk prevention lack proper action as regards suitable prevention, preparedness and disaster resilience. Disaster risks relate to floods, droughts, urban sprawl, soil erosion and contaminated industrial sites. Challenges remain in the area of water management, including storm water management, urban waste water treatment, water retention ([33]) and natural / man-made disaster resilience. The country needs significant progress to achieve the good status and the objectives set down for water bodies in EU legislation. The most significant pressures on rivers and groundwater bodies originate from human activity and respectively agricultural pollution. The expected progress resulting from the planed measures is low and even though there has been some progress, some challenges like the hydromorphological pressures are still not addressed.

([32]) There were exceedances also for Particle Matter 2.5, Nitrogen dioxide and ozone. The European Environment Agency (2018) estimated that more than 10 100 annual premature deaths can be attributable to fine particulate matter concentration, 460 to ozone and 490 to nitrogen dioxide concentrations.

([33]) The ecological status is less than good in most parts of the country and only 19.2 % of surface water bodies have good or high status (European Environment Agency, 2018).

3.4.2 Single Market integration

Access to certain regulated professions in the country continues to be more restrictive compared to the EU average. This relates particularly to notaries, lawyers, architects and civil engineers ([34]). These restrictions could potentially hamper competition, long-term growth, innovation and competitiveness.

The country is only partly exploiting the opportunities offered by the Single Market. The number of single market directives not yet transposed is higher than the EU average and the average transposition delay increased significantly to 14.4 months in 2017 (the EU average was 8.7 months).

The internationalisation of the small and medium-sized enterprises remains low. SMEs lag behind the EU average in terms of intra-EU imports and exports of goods, suggesting that specific trade barriers in the single market of goods persist (see 2018 SBA Fact Sheet). The free movement of goods and intra-EU trade flows are expanding but in specific sectors trade barriers continue to exist as mutual recognition of other Member States legislation is not always effective.

Reduced efficiency and coordination of market surveillance may distort competition. The responsibility for market surveillance of non-food goods is spread over around a dozen authorities. This poses challenges for coordination and strategic choices for priority setting, given that authorities face a persistent lack of financial and material resources to ensure surveillance activities are carried out effectively ([35]). Reduced market surveillance may trigger the emergence of non-compliant and unsafe products from third-countries in the Czech market. As companies who manufacture or distribute noncompliant products do not incur compliance costs, they may also enjoy significant savings and distort competition.

The country is well interconnected in the internal electricity market. It currently has an interconnection capacity of 19.3 %. However, congestion management in Central Europe needs a

([34]) COM(2016) 820 final and SWD(2016) 436 final

([35]) For example, the responsibility for the market surveillance of safety of toys is divided between two authorities and ministries depending on whether the toys are meant for children younger or older than 3 years.

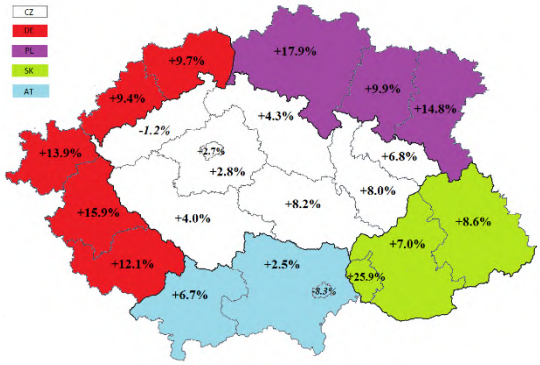
solution at regional level that facilitates cross-border electricity flows, while ensuring system security. Measures that can increase the flexibility of energy demand are still pending (e.g.: smart meters rollout).

The Czech Republic continues to show its commitment to the Digital Single Market. The government has adopted three strategic documents that specify the country's position in negotiations and cooperation in digital policies at the European level. The government also adhered to various EU initiatives on artificial intelligence, blockchain technology and high performance computing.

3.4.3 Regional dimension

Over the past decade, economic performance has been uneven across the Czech regions. Some regional convergence is observed as the Moravian regions, starting from lower levels, recorded higher growth rates than the more advanced Bohemian regions (Graph 3.4.7). However, this convergence pattern did not apply to the Severozápad region, which levelled off in terms of economic performance since 2005. In addition, the Bohemian regions have grown at a slower pace than some neighbouring German and Austrian regions.

Graph 3.4.7: **Change in GDP per inhabitant in 2007-2016 compared to the change of the EU average in the Czech and neighbouring NUTS 2 regions**



Source: Eurostat Regional Yearbook 2018
Note: Change of GDP per inhabitant, by NUTS 2 regions, 2007-2016 (pps difference for 2016 minus 2007; based on data in PP) in relation to the EU-28 average, EU-28 = 0)

Tapping into the unused potential in various regions requires a clear strategy. Some regions specialise in areas such as information and communications technology, specialised manufacturing or nanotechnology but a tailored mix of policies is needed for them to become European clusters. The entrepreneurial capacity varies substantially, with a significant lag between Prague and Brno and the rest of the country. In addition, there is a large mismatch between labour market needs and the offer provided by secondary schools and vocational training in certain peripheral regions. Furthermore, there is a persistent digital divide between the more urban and the more rural Czech regions, which is still not sufficiently addressed. Certain local initiative-based and place-based strategies could address these disparities and tap into the unused potential of certain regions. Integrated tools such as integrated territorial investments for urban areas or community led local development plans for rural areas have a great potential to stimulate the emergence of an integrated social, economic, cultural and environmental development.

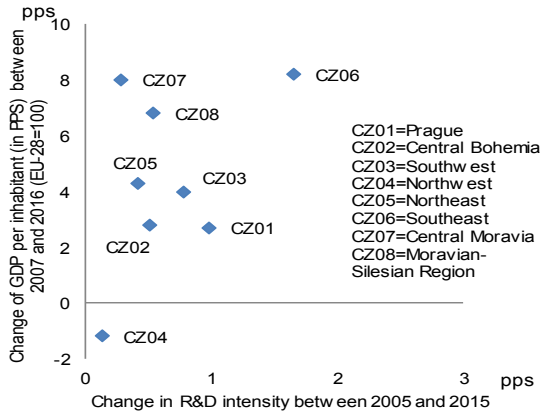
Metropolitan areas face pressures on their transport infrastructure, high costs of living and lack of affordable housing. Despite having higher productivity, better education, improved innovation capacity and better connectivity, Prague with its adjacent areas in Central Bohemia and Brno suffer from certain negative externalities. Of particular importance is the process of suburbanisation which requires these places to upgrade their transport networks (i.e.: completion of the Prague Ring) and find innovative solutions regarding housing affordability.

The gap between Prague and Brno and the less developed regions has further increased, most visibly with the Northwest region. The gap is particularly visible in terms of social exclusion, quality of education, public governance, and research and innovation. To prevent it from further widening, investment priorities in the less developed regions need to focus on structural transformation. Thus, apart from investing on infrastructure, there is also a need to tackle issues related to social exclusion (i.e.: measures to reduce personal bankruptcies and the number of people in distress), improve the level of education, public administration and entrepreneurial skills. All of these may prevent deep and irreversible societal changes, which risk exacerbating social tensions and widen the gap between the regions.

With the right mix of policies, the 'transition' regions can speed up their convergence process.

Severozápad and Jihovýchod regions together with Střední Čechy are moderate innovators, with a particular emphasis in the area surrounding Brno. Their productivity is quite high at country level, excluding the levels seen in Prague. The core parts of these regions are the metropolitan areas and the regional centres, which have the potential to drive regional productivity and innovation. Nonetheless, these regions are faced with bottlenecks regarding transport infrastructure, social services, waste management and air quality, which may delay their catch-up process. These 'transition' regions also include economically weak districts such as Znojmo, Hodonin or Tachov, which have a higher proportion of people at risk of poverty, social exclusion and higher unemployment. These mostly peripheral territories are further away from the backbone of the country's transport infrastructure and regional centres. These areas, where small and medium-sized enterprises are the main employers, are affected by the poor accessibility of public transport and services, demographic pressures and low digitalisation.

Graph 3.4.8: **Change in GDP per inhabitant vs change in R&D intensity in the Czech NUTS 2 regions**



Source: European Commission

Substantial support is required to reduce disparities in the 'less developed regions'. GDP per inhabitant in these regions varies from 63 % of the EU average in Severozápad to 75 % in Moravskoslezsko. The innovation intensity of the less developed regions is significantly lower in addition to large productivity gaps. Some of them (e.g. Moravskoslezsko) face significant rates of negative net migration and higher unemployment rates. The worst performing districts are concentrated in the Severozápad (i.e. Ústecký and Karlovarský) with around 15 % to 20 % of the population at risk of social exclusion in certain areas. In addition, the level of R&D expenditure in this region is around three times lower than in the second-worst region in this regard (Graph 3.4.8). Regional cities like Ostrava, Olomouc or Liberec have a significant potential to develop quality innovation but may need to improve their digital infrastructure.

Some less developed regions are undergoing a process of economic restructuring. Due to their historical focus on old industrial sectors, three regions (Ústecký, Karlovarský, Moravskoslezský) are supported by a specific government resolution called the Strategic Framework for Economic Restructuring (RESTART). Although improving, there are still several districts with very poor connectivity, which increases their remoteness (e.g. Bruntal or Jesenik). These regions also have a higher proportion of people at risk of poverty and social exclusion, negative net migration, low focus on innovation, reduced accessibility to public transport services and environmental concerns (e.g. air quality). There is also larger percentage of long-term unemployed people and a mismatch in the labour market due to low education outcomes. Therefore, short and mid-term transformative action is vital to develop these areas.

3.4.4 Governance quality

Public sector performance and government effectiveness ranks below EU average. While a relatively high performance can be observed in access to government information and the use of regulatory impact assessments in policymaking, it is less pronounced when it comes to evidence-informed decision-making, strategic planning capacity and coordination at the central government level and between the state and the local level of administration. The Czech Republic faces particular difficulties as regards digitisation of government services and the professionalisation of the civil service (European Commission, 2018e). In the 2017 European Quality of Government Index, the Czech Republic reported one of the largest variations between its regions in terms of quality of governance in the EU ([36]). Efforts are needed to increase the expertise at all governance levels, including authorities that

([36]) -0.99 in Northwest and 0.01 in Southwest; EU = 0.

manage funds, central and local authorities, universities and research institutes implementing the projects, as well as local actors and grass-root organisations.

Recent proposals aim to reduce the complexity of the planning procedures. An amendment to the Act on Accelerating the Construction of Transport, Water, Energy and Electronic Communication Infrastructure entered into effect in September 2018. It primarily deals with the backbone of the motorway network, main railway corridors and high-speed railway lines, Prague airport and other facilities. The amendment aims to substantially shorten and improve the effectiveness of permit proceedings relating to major structures; the most important permit process relates to expropriation framework. The effects of the amendment remain to be seen in practice.

The government is preparing a completely new construction act. The latest amendment of the Construction Act in place since 2018 has had a limited impact. In this context, the government signed an agreement with the Chamber of Commerce to help it drafting the new act, based on practical experience of the construction industry. The government expects to adopt the new law by spring 2023 but it remains to be clarified how public participation will be maintained.

Administrative burden, measured as distance from the frontier varies substantially among the regions ([37]). Prague ranks at the top, but still below the EU average. In terms of registering property, all cities perform above the EU average. Ostrava and Ústí nad Labem are also above the EU average in terms of starting a business. The number of procedures to complete the four steps of the survey varies from 35 in Brno to 39 in Olomouc or Plzen. However, the time to complete them varies from the 358 days of Prague to 519 of Ústí nad Labem (World Bank, 2018b). The strong correlation between the number of procedures and the completion time suggests an administrative capacity challenge and room for simplification.

Following recent changes, the legal framework on procurement appears largely fit-for-purpose, yet issues over its practicality remain. The changes to the law governing public procurement over recent years rightly shifted the focus to implementation and enforcement. Public buyers continue to face difficulties in attracting bids from potential suppliers. The proportion of procurement procedures in which only one bid is received remains high. Moreover, some of the bids that are received are inadequate. There is scope for optimising public procurement procedures to improve supplier participation and increasing trust in public institutions. In order to professionalise, the public authorities have continued their multi-tiered programme of public procurement training. Among the various themes, some specifically target the supply side. The authorities have also started to cooperate with professional organisations and other relevant bodies to develop methodological guidance.

Transparency in public procurement has improved. This is shown in the decreasing number of negotiated procedures without publication (21 % in 2016, 10 % in 2017 and 8 % in 2018). Nevertheless, the use of quality criteria in awarding these contracts (23 %) and the level of joined or centralised procurement (3 %) remained rather constant. The average length of procurement procedures increased to 135 days in 2018, compared to 114 in 2017.

The handling of complaints regarding procurement procedure is getting better but there is room for improvement. There has been an increase in the average speed of handling complaints by review bodies for both first instance and second instance decisions. Still, while respecting the legal limits, review procedures are subject to criticism due to their duration and the fees introduced to prevent unsubstantiated complaints. The current methodological support on the application of current legislation does not always meet the needs of stakeholders causing a lack of balance between caution and strategic approach. This may limit the wider application of the most economically advantageous tender criteria and can affect possible complainants.

There has been an increased focus on the environmental and socio-economic aspects of public procurement. In 2018, the government adopted a resolution endorsing more responsible and transparent public procurement procedures. A working group of representatives from the central

([37]) The distance to frontier score measures the best performance observed on each of the indicators across all economies in the World Bank Doing Business sample since 2005.

and local government and NGOs issued its first report and recommendations on strategic procurement. However, the vast majority of public procurement decisions continue to be based on the lowest price as the adoption of a strategic approach remains pending. In line with the EU Public Procurement Directives, all affected purchases became subject to electronic procedures. The government has obliged all central government bodies to use the National Electronic Procurement system, but further improvement is needed.

The Ministry of Health started to coordinate a pilot project on centralised procurement. It aims to combine the purchases of a range of medical devices and medicines for 14 large state hospitals. Depending on the results regarding better price, quality and savings achieved through economies of scale and exchanging expertise, the scheme may be expanded, potentially improving the sustainability of the healthcare system.

While improving, the country remains below the EU average in terms of e-government. 52 % of Czech internet users usually send filled forms to public authorities over the internet, below the 64 % EU average. The national e-government strategy aims to create a pro-digital environment, ensure user-friendly services, introduce digital-friendly legislation and improve the digital skills of civil servants. Even though the country commits to the 'once-only' principle, the digital public services still lack coordination and information sharing.

Some e-government initiatives are encouraging. The eID and the new public administration portal are being tested for more user-centric features. The digitisation of the Land and Property register has been successfully finalised and within the national e-health strategy, the e-prescription service was implemented as of 1 January 2018. Another initiative underway aims to bundle all information on planning applications into a single 'e-binder' that will be shared across all authorities responsible for planning approval.

Despite slight improvements, corruption remains a concern for doing business and may hinder economic activity. According to the 2017 Business Eurobarometer, 51 % of business representatives considered corruption to be a problem for their company when doing business. According to the World Bank, the country improved constantly in terms of control of corruption between 2014 and 2017. The Corruption Perception Index of Transparency International, on the other hand, showed fluctuation over the past few years, scoring 59, 57, 55 and 56 in 2018, 2017, 2016 and 2015 respectively. Over the recent years, there has been no significant increase in the criminal statistics on people convicted for corruption-related offences on a yearly basis. In general, there is still scope for further measures to prevent and address the conflict of interest, fraud and corruption.

Progress made in adopting anti-corruption measures slowed somewhat in 2018. The reforms introduced in 2017, including on public procurement, are currently being implemented. The adoption of new legislation had to be reinitiated when the new Chamber of Deputies resumed its legislative activities in 2018. The government adopted a provisional action plan on corruption in January 2018, focused mostly on practical interim measures, followed by an anti-corruption strategy for 2018-2022 in December 2018. A couple of other proposals, which were discussed without success over recent years, were also adopted by the government and sent to Parliament for further discussion. These include proposals for extending the role of the Supreme Audit Office to the regions and municipalities, and on nominations to the state owned companies, an area open to conflicts of interest where regulation is essential. However, the proposals on protection of whistleblowers and on lobbying have not yet been adopted. The anti-corruption agenda was transferred from the Office of the Government to the Ministry of Justice, changing the coordination of activities under this cross-cutting agenda.

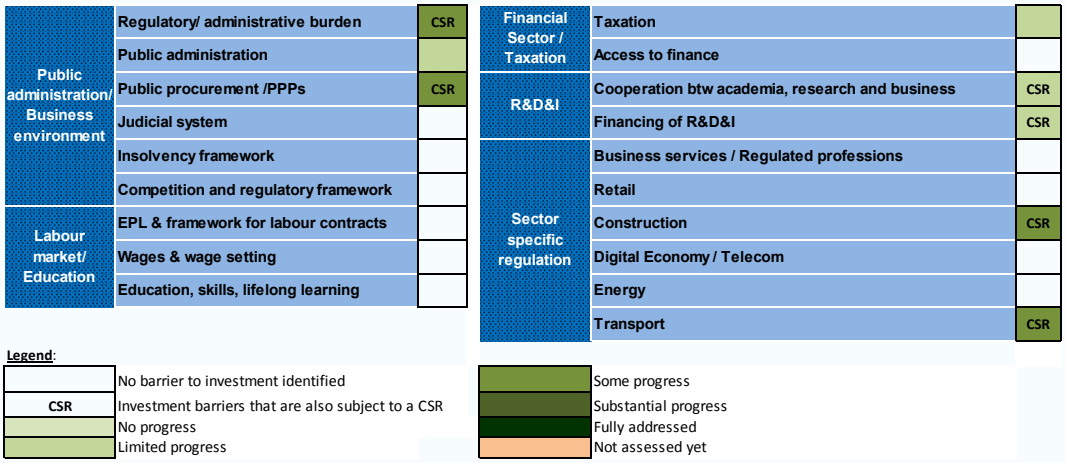
The process of ensuring independence of the civil service has become subject to reconsideration. The 2015 Civil Service Act partially achieved its initial aim to foster stability and predictability in the functioning of the civil service. However, in March 2018 the government submitted a legislative amendment to substantially review it, approved by the Parliament in January 2019. The amendment raises some concerns about the stability and independence of the civil service, as it provides for increased flexibility for dismissing and recruiting civil servants and for the introduction of a measure of ad hoc performance appraisals.

Box 3.4.1: Investment challenges and reforms in the Czech Republic

Macroeconomic perspective

The level of investment has been high since EU accession due the weight of the manufacturing sector in the economy, which requires high levels of investment in equipment. With an annual average of 27.5 % of GDP in 2000-2017, the Czech Republic has had one of the highest levels of investment at EU level. At 5 % of GDP in 2000-2017, the level of public investment has also been high but is forecast to drop to around 4 in 2018-2020. In general, the volatility of public investment is strongly influenced by the EU funds cycle (see Section 3.4).

Assessment of barriers to investment and ongoing reforms



Despite some progress, public sector performance and government effectiveness ranks below the EU average. The reduced strategic planning capacity and the administrative and regulatory burdens are particularly problematic. This is exacerbated by the lack of predictability and the lack of stabile legislation, including in the area of taxation. Some reforms were adopted lately but their impact remains to be seen.

Selected barriers to investment and priority actions underway

Investment in construction and transport infrastructure is influenced by the lengthy procedures for issuing building and land-use permits. The time needed to comply with these permits and the number of procedures is significantly above the level seen in other high-income economies. Some progress has been made in streamlining the procedures for land expropriation when a new law amendment entered into effect in 2018. The government's intention is to fully revise the legislation on construction by 2023.

While recent changes improved the framework, there are still practical issues pending regarding public procurement. While the focus was rightly shifted towards implementation and enforcement, the proportion of single-bid tenders remains high. Furthermore, most procedures continue to use price as the only criterion for selection. On a positive note, there has been some progress in handling procedure complaints and an increased focus on environmental and socio-economic aspects of public procurement.

The national promotional bank, the Czech-Moravian Guarantee and Development Bank, supports investments by businesses and local authorities, through a range of loan and guarantee products using both own resources and EU financial instruments. In addition, the Czech Agency for Enterprise and Innovation provides grants in high priority areas, such as low-carbon technologies, smart grids and energy savings.

ANNEX A: OVERVIEW TABLE

Commitments	Summary assessment
2018 country-specific recommendations (CSRs)	
CSR 1: Improve the long-term fiscal sustainability, in particular of the pension system. Address weaknesses in public procurement practices, in particular by enabling more quality-based competition and by implementing anti-corruption measures.	The Czech Republic has made **Limited Progress** in addressing CSR 1
Improve the long-term fiscal sustainability, in particular of the pension system.	• **No Progress** Recent measures increase pension adequacy but are not coupled with policies that improve long-term sustainability. The government made pension indexation more generous by taking into account one half (rather than the previous one third) of real wage growth. It will also top up pensions with CZK 1 000 for all pensioners over 85 years and increase the flat rate part of the pensions from 9 % to 10 % of the average wage. These measures will likely increase costs further and worsen the sustainability indicator (S2) by around 0.2 to 0.3 pps of GDP in the long term. While the government agreement mentions pension reform among its priorities, it is unclear what reforms are envisaged and if they can improve the sustainability of the pension system. The projected increase in age-related public expenditure on healthcare also reduces long-term fiscal sustainability. Public expenditure on healthcare is projected to increase by 1.1 pps of GDP by 2070, above the EU average increase of 0.9 pps. Taking into account the impact of non-demographic drivers, it may increase by 1.9 pps of GDP by 2070, 0.3 pps above the EU average.
Address weaknesses in public procurement practices, in particular by enabling more quality-based competition and by implementing anti-corruption measures.	• **Some Progress** There has been some progress in addressing weaknesses in public procurement practices. Nonetheless, apart from an improved and restructured public procurement training system and increased cooperation of contracting authorities with professional authorities, annual procurement indicators do not evidence so far any improvement of public procurement practices in terms of quality based competition. Nevertheless, the effort goes into the right direction, even if the results may take more time to show. Anti-corruption measures have been planned but adoption by the Parliament

	has been long outstanding.
CSR 2: Reduce the administrative burden on investment, including by speeding up permit procedures for infrastructure work. Remove the bottlenecks hampering research, development and innovation, in particular by increasing the innovation capacity of domestic firms. Strengthen the capacity of the education system to deliver quality inclusive education, including by promoting the teaching profession. Foster the employment of women, the low-skilled and people with disabilities, including by improving the effectiveness of active labour market policies.	The Czech Republic has made **Some Progress** in addressing CSR 2
Reduce the administrative burden on investment, including by speeding up permit procedures for infrastructure work.	• **Some Progress** An amendment to the current legislation has the potential to shorten and improve the effectiveness of permits proceedings involving the awarding of permits related to strategic infrastructure. Furthermore, a new construction law is being prepared and is expected to be finalised by 2023.
Remove the bottlenecks hampering research, development and innovation, in particular by increasing the innovation capacity of domestic firms.	• **Limited Progress** The announced 'Investment package', if well designed, could attract higher value investments in the country and thus strengthen the potential for innovation. At the same time, the recent changes in the R&I policy governance and the design of Metodika 17+ are unlikely to significantly improve R&D performance. The Czech Republic remains a 'moderate' innovator with a performance of around 80% of the EU average. Despite the Czech economy gradually shifting towards more knowledge-intensive activities also thanks to EU funding, the proportion of innovative Czech firms is lagging behind the EU average. Bottlenecks exist on the supply side as well, mainly related to the generally low attractiveness of the public research systems when compared internationally, the shortage of skilled researchers and a lack of incentives for collaboration with businesses.
Strengthen the capacity of the education system to deliver quality inclusive education, including by promoting the teaching profession.	• **Some Progress** A number of measures to improve the system have been taken but their impact will depend on implementation. Regarding the teaching profession, its attractiveness remains low and further efforts

	are needed to better promote it and to attract and retain talented young people**.**
Foster the employment of women, the low-skilled and disabled people, including by improving the effectiveness of active labour market policies.	• **Some Progress** Measures fostering labour market participation of women, low-skilled and people with disabilities have somewhat improved but there are still challenges regarding the effectiveness of active labour market policies (ALMP). Improvements were supported from EU funds by increasing the number of childcare facilities but the implementation of other policy measures is delayed. The announced changes in provision of individualised services by public employment services, which could further help to integrate other underrepresented groups such as the low skilled and people with disabilities, have not yet brought tangible results. Due to the ineffective targeting and a lack of tailored measures, the progress in improving the effectiveness of ALMPs was limited, preventing these groups from fully benefitting from the favourable conditions of the labour market.
Europe 2020 (national targets and progress)	
Employment rate target set in the NRP: 75 %.	The employment rate has risen steadily over the past five years, reaching 80.0 % in Q3-2018.
R&D target set in the NRP: 1 % of GDP for public R&D expenditures	In 2017, R&D intensity in the Czech Republic was 1.79 % of GDP composed of 63 % private investment (1.13 % of GDP) and 37 % public investment (0.66 % of GDP). While public R&D expenditure as a share of GDP strongly increased from 2008 to 2015 (from 0.52 % to 0.87 %), it decreased to 0.66 % in 2017. It is not likely that the 1 % target will be reached by 2020.
National greenhouse gas (GHG) emissions target: Max + 9 % in 2020 compared with 2005 (in sectors not included in the EU emissions trading scheme)	Non-ETS 2020 target: + 9 % Emissions are expected to be at 2005 level in 2020, according to national projections taking into account existing measures. This means that the Czech Republic is expected to overachieve

	its target by 9 pps. Non-ETS 2017 intermediate target: + 6 % In 2017 emissions were 4 % higher than in 2005 (based on preliminary data). This means that the Czech Republic overachieved its intermediate target by two pps.
2020 renewable energy target: 13 %	With a renewable energy share of 14.8 % in 2017, the Czech Republic is on track to meet its target for 2020.
Energy efficiency, 2020 energy consumption targets: The Czech Republic's 2020 energy efficiency target is 44.3 Mtoe expressed in primary energy consumption (25.3 Mtoe expressed in final energy consumption)	The Czech Republic increased its primary energy consumption to 40.1 Mtoe in 2017. Final energy consumption increased to 25.5 Mtoe, above the set target.
Early school/training leaving target: 5.5 %.	Early school leaving was 6.7 % in 2017, above the national target. No major change took place since 2016, when the share of early leavers from education and training amounted to 6.6 %. While above the national target, the value is well below the 10.6 % EU average
Tertiary education target: 32 % of population aged 30-34.	The tertiary attainment rate rose to 34.2 % in 2017, exceeding the national target and reflecting a sharp increase in recent years.
Target for reducing the number of people at risk of poverty or social exclusion, expressed as an absolute number of people: 380 000 (base year 2008: 1 566 000).	The number of people at risk of poverty or social exclusion has fallen by 299 000 since 2008, reaching 1 267 000 in 2017.

([1]) The following categories are used to assess progress in implementing the country-specific recommendations (CSRs):

No progress: The Member State has not credibly announced nor adopted any measures to address the CSR. This category covers a number of typical situations to be interpreted on a case by case basis taking into account country-specific conditions. They include the following:

- no legal, administrative, or budgetary measures have been announced
- in the national reform programme,
- in any other official communication to the national Parliament/relevant parliamentary committees or the European Commission,
- publicly (e.g. in a press statement or on the government's website);

- no non-legislative acts have been presented by the governing or legislative body;
- the Member State has taken initial steps in addressing the CSR, such as commissioning a study or setting up a study group to analyse possible measures to be taken (unless the CSR explicitly asks for orientations or exploratory actions). However, it has not proposed any clearly-specified measure(s) to address the CSR.

Limited progress: The Member State has:

- announced certain measures but these address the CSR only to a limited extent; and/or
- presented legislative acts in the governing or legislative body but these have not been adopted yet and substantial further, non-legislative work is needed before the CSR is implemented;
- presented non-legislative acts, but has not followed these up with the implementation needed to address the CSR.

Some progress: The Member State has adopted measures

- that partly address the CSR; and/or
- that address the CSR, but a fair amount of work is still needed to fully address the CSR fully as only a few of the measures have been implemented. For instance, a measure or measures have been adopted by the national Parliament or by ministerial decision but no implementing decisions are in place.

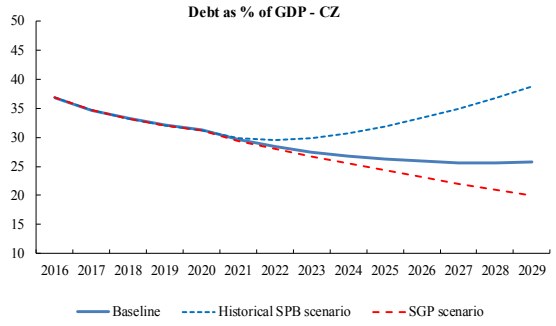
Substantial progress: The Member State has adopted measures that go a long way towards addressing the CSR and most of them have been implemented.

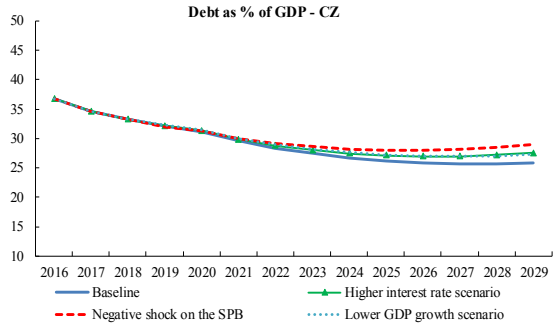
Full implementation: The Member State has implemented all measures needed to address the CSR appropriately.

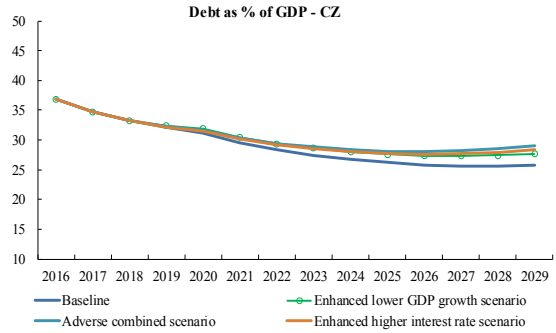
ANNEX B: COMMISSION DEBT SUSTAINABILITY ANALYSIS AND FISCAL RISKS

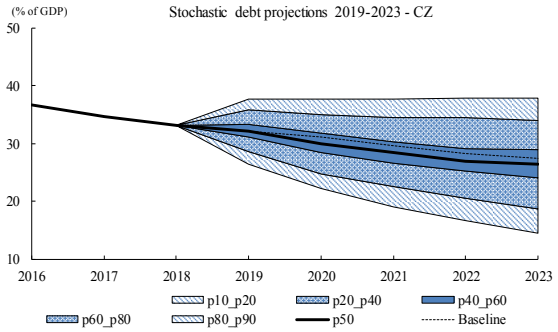
General Government debt projections under baseline, alternative scenarios and sensitivity tests

CZ - Debt projections baseline scenario	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Gross debt ratio	**34.7**	**33.2**	**32.1**	**31.2**	**29.6**	**28.3**	**27.5**	**26.7**	**26.2**	**25.8**	**25.7**	**25.6**	**25.8**
Changes in the ratio (-1+2+3)	*-2.1*	*-1.5*	*-1.1*	*-0.9*	*-1.6*	*-1.2*	*-0.9*	*-0.8*	*-0.5*	*-0.3*	*-0.2*	*0.0*	*0.1*
of which													
(1) Primary balance (1.1+1.2+1.3)	**2.3**	**2.1**	**1.5**	**1.4**	**1.1**	**0.9**	**0.6**	**0.4**	**0.3**	**0.1**	**0.0**	**-0.1**	**-0.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***1.9***	***1.7***	***1.0***	***1.0***	***0.8***	***0.7***	***0.6***	***0.4***	***0.3***	***0.1***	***0.0***	***-0.1***	***-0.2***
(1.1.1) Structural primary balance (bef. CoA)	*1.9*	*1.7*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
(1.1.2) Cost of ageing					*0.2*	*0.3*	*0.4*	*0.6*	*0.7*	*0.9*	*1.0*	*1.1*	*1.2*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***0.4***	***0.5***	***0.5***	***0.4***	***0.3***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3)	**-1.3**	**-0.8**	**-0.9**	**-0.6**	**-0.5**	**-0.3**	**-0.3**	**-0.3**	**-0.2**	**-0.2**	**-0.1**	**-0.1**	**0.0**
(2.1) Interest expenditure	*0.7*	*0.7*	*0.8*	*0.8*	*0.8*	*0.7*	*0.7*	*0.7*	*0.8*	*0.8*	*0.8*	*0.9*	*0.9*
(2.2) Growth effect	*-1.5*	*-1.0*	*-0.9*	*-0.8*	*-0.6*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*
(2.3) Inflation effect	*-0.5*	*-0.5*	*-0.8*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*
(3) Stock-flow adjustments	**1.5**	**1.5**	**1.3**	**1.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**









Short term	Medium term	S1	Debt sustainability analysis (detail)						DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Negative shock on SPB	Stochastic projections			
LOW (S0 = 0.2)	LOW	LOW (S1 = -2.9)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM (S2 = 4.1)	MEDIUM
			Debt level (2029)	25.8	38.6	27.3	27.5	28.9				
			Debt peak year	2018	2029	2018	2018	2018				
			Percentile rank	40.0%	65.0%							
			Probability debt higher						23.2%			
			Dif. between percentiles						23.4			

Note: For further information, see the European Commission Fiscal Sustainability Report (FSR) 2018.

[1] The first table presents the baseline no-fiscal policy change scenario projections. It shows the projected government debt dynamics and its decomposition between the primary balance, snowball effects and stock-flow adjustments. Snowball effects measure the net impact of the counteracting effects of interest rates, inflation, real GDP growth (and exchange rates in some countries). Stock-flow adjustments include differences in cash and accrual accounting, net accumulation of assets, as well as valuation and other residual effects.

[2] The charts present a series of sensitivity tests around the baseline scenario, as well as alternative policy scenarios, in particular: the historical structural primary balance (SPB) scenario (where the SPB is set at its historical average), the Stability and Growth Pact (SGP) scenario (where fiscal policy is assumed to evolve in line with the main provisions of the SGP), a higher interest rate scenario (+1 pp. compared to the baseline), a lower GDP growth scenario (-0.5 pp. compared to the baseline) and a negative shock on the SPB (calibrated on the basis of the forecasted change). An adverse combined scenario and enhanced sensitivity tests (on the interest rate and growth) are also included, as well as stochastic projections. Detailed information on the design of these projections can be found in the FSR 2018.

[3] The second table presents the overall fiscal risk classification over the short, medium and long-term.

a. For the short-term, the risk category (low/high) is based on the S0 indicator. S0 is an early-detection indicator of fiscal stress in the upcoming year, based on 25 fiscal and financial-competitiveness variables that have proven in the past to be leading indicators of fiscal stress. The critical threshold beyond which fiscal distress is signalled is 0.46.

b. For the medium-term, the risk category (low/medium/high) is based on the joint use of the S1 indicator and of the DSA results. The S1 indicator measures the fiscal adjustment required (cumulated over the 5 years following the forecast horizon and sustained thereafter) to bring the debt-to-GDP ratio to 60 % by 2033. The critical values used are 0 and 2.5 pps. of GDP. The DSA classification is based on the results of 5 deterministic scenarios (baseline, historical SPB, higher interest rate, lower GDP growth and negative shock on the SPB scenarios) and the stochastic projections. Different criteria are used such as the projected debt level, the debt path, the realism of fiscal assumptions, the probability of debt stabilisation, and the size of uncertainties.

c. For the long-term, the risk category (low/medium/high) is based on the joint use of the S2 indicator and the DSA results. The S2 indicator measures the upfront and permanent fiscal adjustment required to stabilise the debt-to-GDP ratio over the infinite horizon, including the costs of ageing. The critical values used are 2 and 6 pps. of GDP. The DSA results are used to further qualify the long-term risk classification, in particular in cases when debt vulnerabilities are identified (a medium / high DSA risk category).

ANNEX C: STANDARD TABLES

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

	2013	2014	2015	2016	2017	2018
Total assets of the banking sector (% of GDP)[1)]	121.0	124.8	122.6	127.1	144.9	144.5
Share of assets of the five largest banks (% of total assets)	62.8	61.3	63.3	64.7	64.1	-
Foreign ownership of banking system (% of total assets)[2)]	92.3	91.3	93.1	92.8	91.7	92.4
Financial soundness indicators:[2)]						
- non-performing loans (% of total loans)	-	-	-	4.0	2.8	2.2
- capital adequacy ratio (%)	16.6	17.0	17.6	17.7	18.1	17.6
- return on equity (%)[3)]	11.4	11.4	11.3	11.9	13.0	14.3
Bank loans to the private sector (year-on-year % change)[1)]	3.8	4.5	7.1	8.8	7.4	6.9
Lending for house purchase (year-on-year % change)[1)]	5.7	5.7	8.2	9.2	9.1	8.4
Loan to deposit ratio[2)]	-	78.9	81.8	84.3	94.9	99.2
Central Bank liquidity as % of liabilities[1)]	0.0	0.0	0.0	0.0	0.0	0.0
Private debt (% of GDP)	73.7	71.5	68.1	68.9	67.4	-
Gross external debt (% of GDP)[2)] - public	14.4	13.3	15.5	16.5	16.4	15.1
- private	34.4	36.9	32.9	31.6	33.1	30.4
Long-term interest rate spread versus Bund (basis points)*	54.2	41.3	7.9	33.8	66.3	156.4
Credit default swap spreads for sovereign securities (5-year)*	55.7	47.2	44.9	38.7	37.0	34.7

(1) Latest data Q3 2018. Includes not only banks but all monetary financial institutions excluding central banks.
(2) Latest data Q2 2018.
(3) Quarterly values are not annualised
* Measured in basis points.

Source: European Commission (long-term interest rates); World Bank (gross external debt); Eurostat (private debt); ECB (all other indicators).

Table C.2: **Headline Social Scoreboard indicators**

	2013	2014	2015	2016	2017	2018 [6]
Equal opportunities and access to the labour market						
Early leavers from education and training (% of population aged 18-24)	5.4	5.5	6.2	6.6	6.7	:
Gender employment gap (pps)	17.2	17.5	16.6	16.0	15.8	15.3
Income inequality, measured as quintile share ratio (S80/S20)	3.4	3.5	3.5	3.5	3.4	:
At-risk-of-poverty or social exclusion rate[1] (AROPE)	14.6	14.8	14.0	13.3	12.2	:
Young people neither in employment nor in education and training (% of population aged 15-24)	9.1	8.1	7.5	7.0	6.3	:
Dynamic labour markets and fair working conditions[†]						
Employment rate (20-64 years)	72.5	73.5	74.8	76.7	78.5	79.7
Unemployment rate[2] (15-74 years)	7.0	6.1	5.1	4.0	2.9	2.2
Long-term unemployment rate[3] (as % of active population)	3.0	2.7	2.4	1.7	1.0	0.7
Gross disposable income of households in real terms per capita[4] (Index 2008=100)	98.2	100.9	104.9	108.2	109.9	:
Annual net earnings of a full-time single worker without children earning an average wage (levels in PPS, three-year average)	13155	13496	13809	14111	:	:
Annual net earnings of a full-time single worker without children earning an average wage (percentage change, real terms, three-year average)	-0.9	-0.1	0.9	2.2	:	:
Public support / Social protection and inclusion						
Impact of social transfers (excluding pensions) on poverty reduction[5]	48.2	43.6	42.3	40.5	42.4	:
Children aged less than 3 years in formal childcare	2.0	4.4	2.9	4.7	6.5	:
Self-reported unmet need for medical care	1.0	1.1	0.8	0.7	0.5	:
Individuals who have basic or above basic overall digital skills (% of population aged 16-74)	:	:	57.0	54.0	60.0	:

(1) People at risk of poverty or social exclusion (AROPE): individuals who are at risk of poverty (AROP) and/or suffering from severe material deprivation (SMD) and/or living in households with zero or very low work intensity (LWI).
(2) Unemployed persons are all those who were not employed but had actively sought work and were ready to begin working immediately or within two weeks.
(3) Long-term unemployed are people who have been unemployed for at least 12 months.
(4) Gross disposable household income is defined in unadjusted terms, according to the draft Joint Employment Report 2019.
(5) Reduction in percentage of the risk of poverty rate, due to social transfers (calculated comparing at-risk-of poverty rates before social transfers with those after transfers; pensions are not considered as social transfers in the calculation).
(6) Average of first three quarters of 2018 for the employment rate, unemployment rate and gender employment gap. Data for unemployment rate is annual.
Source: Eurostat

Table C.3: **Labour market and education indicators**

Labour market indicators	**2013**	**2014**	**2015**	**2016**	**2017**	**2018** [4]
Activity rate (15-64)	72.9	73.5	74.0	75.0	75.9	76.4
Employment in current job by duration						
From 0 to 11 months	9.3	9.7	10.0	10.1	10.5	:
From 12 to 23 months	7.3	7.0	7.5	8.5	8.1	:
From 24 to 59 months	17.0	16.1	15.1	15.4	16.7	:
60 months or over	66.2	67.1	67.3	65.9	64.5	:
Employment growth* (% change from previous year)	0.3	0.6	1.4	1.6	1.6	1.6
Employment rate of women (% of female population aged 20-64)	63.8	64.7	66.4	68.6	70.5	71.9
Employment rate of men (% of male population aged 20-64)	81.0	82.2	83.0	84.6	86.3	87.2
Employment rate of older workers* (% of population aged 55-64)	51.6	54.0	55.5	58.5	62.1	65.0
Part-time employment* (% of total employment, aged 15-64)	5.8	5.5	5.3	5.7	6.2	6.3
Fixed-term employment* (% of employees with a fixed term contract, aged 15-64)	9.1	9.7	10.0	9.7	9.6	8.5
Participation in activation labour market policies (per 100 persons wanting to work)	10.8	18.0	21.8	22.4	:	:
Transition rate from temporary to permanent employment (3-year average)	34.7	33.5	35.1	36.5	39.6	:
Youth unemployment rate (% active population aged 15-24)	18.9	15.9	12.6	10.5	7.9	6.7
Gender gap in part-time employment (aged 20-64)	7.6	7.0	7.1	7.6	8.5	8.2
Gender pay gap[1] (in undadjusted form)	22.3	22.5	22.5	21.5	21.1	:
Education and training indicators	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Adult participation in learning (% of people aged 25-64 participating in education and training)	10.0	9.6	8.5	8.8	9.8	:
Underachievement in education[2]	:	:	21.7	:	:	:
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	26.7	28.2	30.1	32.8	34.2	:
Variation in performance explained by students' socio-economic status[3]	:	:	18.8	:	:	:

* Non-scoreboard indicator

(1) Difference between the average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. It is defined as "unadjusted", as it does not correct for the distribution of individual characteristics (and thus gives an overall picture of gender inequalities in terms of pay). All employees working in firms with ten or more employees, without restrictions for age and hours worked, are included.

(2) PISA (OECD) results for low achievement in mathematics for 15 year-olds.

(3) Impact of socio-economic and cultural status on PISA (OECD) scores. Values for 2012 and 2015 refer respectively to mathematics and science.

(4) Average of first three quarters of 2018 for the activity rate, employment growth, employment rate, part-time employment, fixed-term employment. Data for youth unemployment rate is annual

Source: Eurostat, OECD

Table C.4: **Social inclusion and health indicators**

	2012	2013	2014	2015	2016	2017
Expenditure on social protection benefits* (% of GDP)						
Sickness/healthcare	6.0	6.0	6.0	5.8	5.9	:
Disability	1.4	1.3	1.3	1.2	1.2	:
Old age and survivors	9.5	9.3	9.0	8.7	8.6	:
Family/children	1.8	1.8	1.7	1.6	1.6	:
Unemployment	0.6	0.7	0.6	0.5	0.5	:
Housing	0.2	0.3	0.3	0.3	0.3	:
Social exclusion n.e.c.	0.3	0.3	0.3	0.3	0.3	:
Total	19.8	19.6	19.1	18.4	18.3	:
of which: means-tested benefits	0.4	0.5	0.5	0.5	0.5	:
General government expenditure by function (% of GDP, COFOG)						
Social protection	13.3	13.5	13.1	12.5	12.3	:
Health	7.7	7.6	7.6	7.6	7.4	:
Education	5.0	5.1	5.1	4.9	4.5	:
Out-of-pocket expenditure on healthcare (% of total health expenditure)	:	13.6	14.1	13.7	15.0	:
Children at risk of poverty or social exclusion (% of people aged 0-17)*	18.8	16.4	19.5	18.5	17.4	14.2
At-risk-of-poverty rate[1] (% of total population)	9.6	8.6	9.7	9.7	9.7	9.1
In-work at-risk-of-poverty rate (% of persons employed)	4.5	4.0	3.6	4.0	3.8	3.5
Severe material deprivation rate[2] (% of total population)	6.6	6.6	6.7	5.6	4.8	3.7
Severe housing deprivation rate[3], by tenure status						
Owner, with mortgage or loan	3.3	3.3	2.2	1.7	2.3	2.1
Tenant, rent at market price	10.9	10.6	8.9	8.8	9.2	7.0
Proportion of people living in low work intensity households[4] (% of people aged 0-59)	6.8	6.9	7.6	6.8	6.7	5.5
Poverty thresholds, expressed in national currency at constant prices*	101100	98561	99553	102238	106735	110989
Healthy life years (at the age of 65)						
Females	8.9	8.9	9.3	8.6	8.9	:
Males	8.3	8.5	8.5	8.0	8.4	:
Aggregate replacement ratio for pensions[5] (at the age of 65)	0.6	0.6	0.6	0.5	0.5	0.5
Connectivity dimension of the Digital Economy and Society Inedex (DESI)[6]	:	:	44.8	56.3	61.4	62.3
GINI coefficient before taxes and transfers*	46.3	46.0	46.9	46.2	46.1	44.7
GINI coefficient after taxes and transfers*	24.9	24.6	25.1	25.0	25.1	24.5

* Non-scoreboard indicator
(1) At-risk-of-poverty rate (AROP): proportion of people with an equivalised disposable income below 60 % of the national equivalised median income.
(2) Proportion of people who experience at least four of the following forms of deprivation: not being able to afford to i) pay their rent or utility bills, ii) keep their home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) enjoy a week of holiday away from home once a year, vi) have a car, vii) have a washing machine, viii) have a colour TV, or ix) have a telephone.
(3) Percentage of total population living in overcrowded dwellings and exhibiting housing deprivation.
(4) People living in households with very low work intensity: proportion of people aged 0-59 living in households where the adults (excluding dependent children) worked less than 20 % of their total work-time potential in the previous 12 months.
(5) Ratio of the median individual gross pensions of people aged 65-74 relative to the median individual gross earnings of people aged 50-59.
(6) Fixed broadband take up (33%), mobile broadband take up (22%), speed (33%) and affordability (11%), from the Digital Scoreboard.
Source: Eurostat, OECD

Table C.5: **Product market performance and policy indicators**

Performance indicators	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Labour productivity per person[1] growth (t/t-1) in %						
Labour productivity growth in industry	-3.67	-4.32	3.69	0.89	-0.43	7.71
Labour productivity growth in construction	-1.87	3.73	6.84	4.40	-2.04	-2.78
Labour productivity growth in market services	-0.57	1.15	2.42	5.42	1.98	1.86
Unit Labour Cost (ULC) index[2] growth (t/t-1) in %						
ULC growth in industry	5.87	5.39	-0.64	1.94	4.48	-0.74
ULC growth in construction	0.06	-8.31	-4.32	-0.26	5.62	6.96
ULC growth in market services	2.60	-1.32	0.11	-1.74	2.57	4.81
Business environment	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Time needed to enforce contracts[3] (days)	678	678	678	678	678	678
Time needed to start a business[3] (days)	30.5	30.5	30.5	30.5	24.5	24.5
Outcome of applications by SMEs for bank loans[4]	:	0.73	0.33	0.43	0.19	0.13
Research and innovation	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
R&D intensity	1.79	1.91	2.00	1.93	1.68	1.79
General government expenditure on education as % of GDP	5.00	5.10	5.10	4.90	4.50	:
Employed people with tertiary education and/or people employed in science and technology as % of total employment	36	37	38	37	38	39
Population having completed tertiary education[5]	17	18	19	20	21	21
Young people with upper secondary education[6]	91	91	91	90	90	89
Trade balance of high technology products as % of GDP	0.65	0.40	0.26	-0.91	-0.03	-1.04
Product and service markets and competition				**2003**	**2008**	**2013**
OECD product market regulation (PMR)[7], overall				1.88	1.50	1.39
OECD PMR[7], retail				1.03	1.23	1.56
OECD PMR[7], professional services				2.77	2.48	2.36
OECD PMR[7], network industries[8]				2.96	2.45	2.01

(1) Value added in constant prices divided by the number of persons employed.
(2) Compensation of employees in current prices divided by value added in constant prices.
(3) The methodologies, including the assumptions, for this indicator are shown in detail here: http://www.doingbusiness.org/methodology.
(4) Average of the answer to question Q7B_a. "[Bank loan]: If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome?". Answers were codified as follows: zero if received everything, one if received 75% and above, two if received below 75%, three if refused or rejected and treated as missing values if the application is still pending or don't know.
(5) Percentage population aged 15-64 having completed tertiary education.
(6) Percentage population aged 20-24 having attained at least upper secondary education.
(7) Index: 0 = not regulated; 6 = most regulated. The methodologies of the OECD product market regulation indicators are shown in detail here: http://www.oecd.org/competition/reform/indicatorsofproductmarketregulationhomepage.htm
(8) Aggregate OECD indicators of regulation in energy, transport and communications (ETCR).
Source: European Commission; World Bank — Doing Business (for enforcing contracts and time to start a business); OECD (for the product market regulation indicators); SAFE (for outcome of SMEs' applications for bank loans).

Table C.6: **Green growth**

Green growth performance		2012	2013	2014	2015	2016	2017
Macroeconomic							
Energy intensity	kgoe / €	0.27	0.28	0.26	0.25	0.24	0.2
Carbon intensity	kg / €	0.84	0.82	0.78	0.75	0.74	-
Resource intensity (reciprocal of resource productivity)	kg / €	1.00	0.99	0.99	0.98	0.94	0.88
Waste intensity	kg / €	0.15	-	0.14	-	0.15	-
Energy balance of trade	% GDP	-4.7	-4.8	-4.0	-2.4	-2.1	-2.6
Weighting of energy in HICP	%	14.2	14.1	14.4	14.4	13.7	13.1
Difference between energy price change and inflation	%	5.0	-0.1	-5.7	0.8	-1.1	-3.1
Real unit of energy cost	% of value added	22.0	21.3	19.8	19.9	20.1	-
Ratio of environmental taxes to labour taxes	ratio	0.13	0.12	0.12	0.12	0.12	-
Environmental taxes	% GDP	2.2	2.1	2.1	2.1	2.1	2.1
Sectoral							
Industry energy intensity	kgoe / €	0.13	0.13	0.12	0.12	0.11	0.11
Real unit energy cost for manufacturing industry excl. refining	% of value added	18.1	17.7	16.1	16.0	16.0	-
Share of energy-intensive industries in the economy	% GDP	13.1	12.5	12.9	12.7	12.3	12.4
Electricity prices for medium-sized industrial users	€ / kWh	0.10	0.10	0.08	0.08	0.07	0.07
Gas prices for medium-sized industrial users	€ / kWh	0.03	0.03	0.03	0.03	0.03	0.02
Public R&D for energy	% GDP	0.02	0.02	0.03	0.03	0.03	0.03
Public R&D for environmental protection	% GDP	0.01	0.01	0.01	0.01	0.01	0.02
Municipal waste recycling rate	%	23.2	24.2	25.4	29.7	33.6	34.1
Share of GHG emissions covered by ETS*	%	53.6	51.8	53.0	54.1	51.8	-
Transport energy intensity	kgoe / €	0.77	0.77	0.83	0.84	0.85	0.83
Transport carbon intensity	kg / €	2.09	2.10	2.26	2.30	2.34	-
Security of energy supply							
Energy import dependency	%	25.3	27.4	30.1	31.9	32.6	37.4
Aggregated supplier concentration index	HHI	29.0	33.6	27.2	19.9	32.6	-
Diversification of energy mix	HHI	0.27	0.26	0.26	0.26	0.26	0.25

(1) All macro intensity indicators are expressed as a ratio of a physical quantity to GDP (in 2010 prices)
Energy intensity: gross inland energy consumption (in kgoe) divided by GDP (in EUR)
Carbon intensity: greenhouse gas emissions (in kg CO2 equivalents) divided by GDP (in EUR)
Resource intensity: domestic material consumption (in kg) divided by GDP (in EUR)
Waste intensity: waste (in kg) divided by GDP (in EUR)
(2) Energy balance of trade: the balance of energy exports and imports, expressed as % of GDP
(3) Weighting of energy in HICP: the proportion of 'energy' items in the consumption basket used for the construction of the HICP
(4) Difference between energy price change and inflation: energy component of HICP, and total HICP inflation (annual % change)
(5) Real unit energy cost: real energy costs as % of total value added for the economy
(6) Industry energy intensity: final energy consumption of industry (in kgoe) divided by gross value added of industry (in 2010 EUR)
(7) Real unit energy costs for manufacturing industry excluding refining : real costs as % of value added for manufacturing sectors
(8) Share of energy-intensive industries in the economy: share of gross value added of the energy-intensive industries in GDP
(9) Electricity and gas prices for medium-sized industrial users: consumption band 500–20 00MWh and 10 000–100 000 GJ; figures excl. VAT.
(10) Recycling rate of municipal waste: ratio of recycled and composted municipal waste to total municipal waste
(11) Public R&D for energy or for the environment: government spending on R&D for these categories as % of GDP
(12) Proportion of GHG emissions covered by EU emissions trading system (ETS) (excluding aviation): based on GHG emissions (excl land use, land use change and forestry) as reported by Member States to the European Environment Agency.
(13) Transport energy intensity: final energy consumption of transport activity (kgoe) divided by transport industry gross value added (in 2010 EUR)
(14) Transport carbon intensity: GHG emissions in transport activity divided by gross value added of the transport industry
(15) Energy import dependency: net energy imports divided by gross inland energy consumption incl. consumption of international bunker fuels
(16) Aggregated supplier concentration index: covers oil, gas and coal. Smaller values indicate larger diversification and hence lower risk.
(17) Diversification of the energy mix: Herfindahl-Hirschman index of the main energy products in the gross inland consumption of energy
* European Commission and European Environment Agency

Source: European Commission and European Environment Agency (Share of GHG emissions covered by ETS); European Commission (Environmental taxes over labour taxes and GDP); Eurostat (all other indicators)

ANNEX D: INVESTMENT GUIDANCE ON COHESION POLICY FUNDING 2021-2027 FOR THE CZECH REPUBLIC

Building on the Commission proposal for the next Multi-Annual Financial Framework for the period 2021-2027 of 2 May 2018 (COM(2018) 321), this Annex D presents the preliminary Commission services views on priority investment areas and framework conditions for effective delivery for the 2021-2027 Cohesion Policy ([38]). These priority investment areas are derived from the broader context of investment bottlenecks, investment needs and regional disparities assessed in the report. This Annex provides the basis for a dialogue between the Czech Republic and the Commission services in view of the programming of the cohesion policy funds (European Regional Development Fund, Cohesion Fund and European Social Fund Plus.

Policy Objective 1: A Smarter Europe – Innovative and smart industrial transformation

The Czech Republic is lagging behind as regards the proportion of innovative companies which are crucial drivers of competitiveness. High priority investment needs([39]) have been identified to **strengthen research and innovation capacities and the uptake of advanced technologies**, in particular to strengthen innovation performance and foster productivity growth by identifying smart specialisation areas on the basis of national and regional needs and potential in order to:

- increase attractiveness and competitiveness of the research system by improving management practices and reducing red tape, funding based on the quality of research, creating incentives for attracting qualified researchers, and upgrading research infrastructures where there is clear evidence of commercial interest and proven links to the smart specialisation;
- support cooperation and knowledge transfer between research/academia and businesses in priority sectors;
- increase the number of innovative firms and start-ups in the smart specialisation sectors with the highest potential also taking into account regional specialisations;
- promote investment in universities and secondary schools reflecting the smart specialisation priorities.

Although the Czech Republic ranks around the EU average in terms of the integration of digital technology, households' uptake and companies' use of data-driven technologies remain limited. Priority investment needs have been identified to **reap the benefits of digitisation for citizens, companies and governments**, and in particular to:

- upscale and accelerate e-government, including the take-up of eHealth and Europe-wide interoperable services;
- support integration and uptake of digital technology in small and medium-sized enterprises, including infrastructures and services.

Small and medium-sized enterprises lag behind in investment into research, development and innovation activities and the upgrade of their position in the global value chains. High priority investment needs have been identified to **improve the competitiveness of small and medium-sized enterprises and support technology diffusion and uptake**, in particular to:

- support companies to move up in global value chains, increase productivity and facilitate participation in industry led and research driven international and macro regional clusters;
- strengthen the research and innovation capacities of small and medium-sized enterprises by supporting development and implementation of new business models and adoption of new and emerging technologies;
- provide support for proof of concept, early stage and scale-ups of innovative firms via financial and

([38]) This Annex is to be considered in conjunction with the EC Proposal for a Regulation of the European Parliament and of the Council on the European Regional Development Fund and on the Cohesion Fund COM(2018) 372 and the Proposal for a Regulation of the European Parliament and of the Council on the European Social Fund Plus COM(2018) 382, in particular as regards the requirements for thematic concentration and urban earmarking outlined in these proposals.

([39]) The intensity of needs is classified in three categories in a descending order - high priority needs, priority needs, needs.

soft support measures (e.g. business support services, innovation hubs, etc.); • support small and medium-sized enterprises' internationalisation to grasp new business opportunities related to the digital, carbon-neutrality, resource efficiency and circular economy transitions.
Digitisation and automation may lead to growing skills mismatches. High priority investment needs have been identified to **develop skills for smart specialisation, industrial transition and entrepreneurship**, in particular to: • provide businesses and research institutions with tools to adapt and develop skills for smart specialisation, industrial transition and entrepreneurship; • support growth of small and medium-sized enterprises by specific training and reskilling for smart specialisation areas and innovation management, and building administrative capacity (with a special attention to digital skills and industrial transition); • improve the practise-based approach in vocational education and training, higher education system, supporting the linkages between schools and companies.
Policy Objective 2: A low carbon and greener Europe – Clean and fair energy transition, green and blue investment, circular economy, climate adaptation and risk prevention
A very high energy intensity and poor air quality require high priority investment to **promote low carbon and cleaner energy production, higher energy efficiency and more renewable energy sources**, in particular to: • provide support for capacity-building at regional and local level for managing the clean energy transition and shift towards resource efficient economy; • increase energy efficiency and the use of on-site renewable resources in public and residential buildings, and in small and medium-sized enterprises, including in their premises, installations and processes; • decrease greenhouse gas emissions and air pollution by replacing fossil-fuelled boilers with low carbon intensive installations accompanied by energy efficiency renovation of buildings; • increase the share of renewable energy in heating and cooling, and deploy and integrate small-scale electricity generation facilities based on renewable energy into the grid, including if appropriate storage and conversion facilities.
Main disaster risks identified are floods and droughts. High priority investment needs have been identified **to promote climate change adaptation, risk prevention and disaster resilience, and improve sustainable water management**, in particular to: • provide for prevention measures, including improvement of hydro-morphological conditions in line with river basin management plans and close to nature solutions (e.g. restoration and maintenance of rivers, basins, ponds, and wetlands); • invest in river and water body management and measures to improve the status of water bodies – gaps still remain in reaching the EU's objectives in the area of water policy and urban waste water treatment; • invest in storm water management measures in urban areas, and to support water retention/catchment measures and measures tackling contamination, water run-off and water quality.
The Czech Republic is performing below the EU average in terms of resource productivity. Landfilling is still the treatment option most used for municipal waste. High priority investment needs have been identified **to improve promote the transition to the circular economy**, in particular to: • support measures leading to the transition to the circular economy and shifting towards more prevention, reuse, and recycling of waste.

The Czech Republic is experiencing negative effects of an increasing suburbanisation and environmental hot spots. Priority investment needs have been identified **to improve biodiversity, green infrastructure in the urban environment, and reduce pollution**, in particular to:

- support green infrastructure in the urban environment,
- decontaminate and rehabilitate industrial sites and contaminated land, including old and illegal landfill sites.

Policy Objective 3: A more connected Europe – Mobility and regional Information and Communications Technology connectivity

Investments in infrastructure have been below the EU average with low scores on road infrastructure, where the existing investment gaps are linked to infrastructure coverage, quality and standards (e.g. share of renewable energy in transport, the take-up of electric vehicles and electric vehicle charging points). High priority investment needs have been identified to **develop a sustainable, climate resilient, intelligent, safe and intermodal Trans-European Transport Network** and in particular to:

- construct and modernize Trans-European Transport Network core network railway lines, in particular the outstanding/planned sections on four main transit corridors, including interoperability, the European Railway Traffic Management System and upgrade to the Technical Specification for Interoperability standards;
- construct missing parts of core and comprehensive road Trans-European Transport Network and remove regional disparities in road Trans-European Transport Network accessibility, especially in the south and north-eastern part of the Czech Republic, in cooperation with the neighbouring countries (for selected sections, the public-private partnership could be used).

Priority investment needs have been identified **to promote sustainable multimodal urban mobility and to develop sustainable, intermodal national, regional and local forms of transport**, and in particular to:

- promote intelligent, climate resilient, more connected and cleaner systems of transport;
- promote sustainable and efficient urban transport systems (as part of the relevant integrated territorial development strategies or based on sustainable urban mobility plan) in order to enable a shift towards cleaner collective public transport and active mobility, including alternative fuels infrastructure in cities;
- invest into regional and local mobility addressing negative externalities from transport, for instance supporting multimodality in the transport sector, making the whole sector more environmentally friendly, safer, and cost-effective.

There is a significant digital divide (coverage and take-up) between urban and rural. Investment needs have been identified to **improve digital connectivity**, and in particular to:

- deploy backhaul/backbone broadband infrastructure, and support demand-side measures promoting cabling solutions for owners of private houses in rural areas.

Policy Objective 4: A more social Europe – Implementing the European Pillar of Social Rights

Some population groups face structural difficulties in the labour market and future industrial and demographic changes will heavily affect the workforce. Therefore, high priority investment needs have been identified **to promote women's labour market participation, provide individualised employment services and strengthen workers' ability to adapt,** and in particular to:

- support flexible working arrangements, increase the number of childcare places for children below 3 years, improve long term care, including through infrastructure development;
- implement a comprehensive skills strategy, promote lifelong learning and skills recognition; support workers' adaptability to future requirements through upskilling/reskilling, including for non-EU

nationals;
- modernise labour market institutions and services, including necessary infrastructure;
- promote healthy and elderly–adapted working environment and new work organisation practices;
- support business incubators, infrastructure and equipment for self-employment, micro-enterprises and business/job creation and social innovation, focusing on social enterprises.

The impact of the socio-economic background on educational outcomes is high and disparities among regions are growing. Therefore, high priority investment needs have been identified **to promote inclusiveness and equal access to quality education and training and to strengthen their relevance to the labour market,** notably in regions that lag behind, and in particular to:

- foster equal access to and completion of high quality inclusive education and training, including through appropriate infrastructure and targeted support to learners from socio-economically disadvantaged groups, such as people with disabilities and the Roma;
- address educational disparities between schools and regions and support the acquisition of key competences, including digital skills, support appropriate training for teachers, and provide training to teach heterogeneous groups of pupils;
- support capacity to respond to the labour market needs in particular in vocational education and training, adult education and higher education, and promote excellence in tertiary education.

Social challenges at regional level are increasing. Priority investment needs have been identified to **promote the socio-economic integration of the most deprived**, **and to improve access to social, healthcare and long-term care services with a view to reducing health inequalities,** including by developing infrastructure, and in particular to:

- further promote a coordinated approach to the socioeconomic integration of the socially excluded, such as the Roma, including through food and basic material assistance, access to employment, health and social services, financial counselling, targeted education/training, and measures to tackle housing exclusion;
- support de-institutionalisation of care particularly for children under 3, people with disabilities, the elderly and people with mental disabilities; cooperation between health and social services; strengthen and improve access to primary care particularly for vulnerable groups; integration of care and prevention.

Policy Objective 5 – A Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives

While some regions recorded convergence, internal disparities have rather further increased. Cohesion policy investments need to make full use of the potential of integrated territorial instruments (integrated territorial investment and community-led local development) in order to address the challenges to territorial cohesion and to ensure the place-based approach. Investment needs have been identified to **foster the integrated social, economic, cultural and environmental development, sustainable transport and transport connectivity**, in particular to:

- reduce inequalities between regions and within urban areas by developing economic activity poles and creating the necessary linkages with the surrounding areas under the integrated territorial investments in selected large cities and regional centres, including providing linkages with surrounding areas;
- support transformative action with a special focus on regions undergoing a process of economic restructuring currently subject to the Coal Regions in Transition initiative nationally reflected within the 'RE:START' strategy of the Czech authorities;
- support innovations in better performing southern regions to avoid middle income trap;
- for rural areas, to boost their development and provide capacity building for local authorities, local players, and grass-root organisations (areas remote from backbone transport infrastructure and regional centres or rural areas in the hinterland of large cities, investments in selected functional

areas and based on their integrated territorial development strategies).
Factors for effective delivery of Cohesion policy
• strengthened capacity of national, regional and local authorities – via the development and implementation of a roadmap on administrative capacity building – to effectively manage and use EU funds, and to support policy making and implementation with analysis, evidence and broad consultation with stakeholders; promote cooperation with social partners and social dialogue; • strengthened capacity of beneficiaries, stakeholders and partners to prepare and implement high quality projects and to shape policy through public consultation; • improved public procurement performance, in particular avoiding the use of contracts without prior calls for tenders and contracts with a single bidder, and applying green public procurement criteria; • improved and more efficient measures to prevent and address conflict of interest, fraud and corruption; • broader use of financial instruments, as well as exploiting synergies with InvestEU, for revenue-generating and cost-saving activities.

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