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COMMISSION STAFF WORKING DOCUMENT

2022 Country Report - Czechia

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

**on the 2022 National Reform Programme of Czechia and delivering a Council opinion
on the 2022 Convergence Programme of Czechia**

{COM(2022) 605 final} - {SWD(2022) 640 final}

Czechia

2022 Country Report



ECONOMIC AND EMPLOYMENT SNAPSHOT

Challenges and opportunities on the way to recovery

Czechia's economy grew strongly before the crisis, catching up with the EU average. Pre-crisis growth was driven by solid domestic demand and foreign trade. Average annual GDP growth of 2.5% between 2010 and 2019 (compared to an EU average of 1.6%) ensured national convergence to the EU average. During these years, GDP per capita in purchasing power standards increased from 84% to 93% compared with the EU average. Deeper integration in global supply chains and a significant inflow of EU funds supported growth during this period. Czechia therefore entered the pandemic on a solid economic footing, with significant room for policy support.

The Czech economy was hit hard by the pandemic but has been recovering steadily. The COVID-19 pandemic led to a sudden contraction in GDP in 2020 as containment measures disrupted economic activity, confidence fell across all economic sectors and foreign demand dropped. As a result, the real GDP contracted by 5.8% in 2020. While recovering from the 2020 recession, the negative impact of supply-chain disruptions continued to cause issues for the Czech economy in 2021. Despite that, the Czech economy rebounded by 3.3% in 2021, benefitting from the easing of the pandemic-related restrictions and strong private consumption which was also a result of accumulated savings. Economic activity is expected to regain momentum in 2022 and 2023, surpassing its pre-pandemic level, and forecast is expected to grow by 1.9% in 2022 and 2.7% in 2023.

Inflation pressures have increased. Consumer price inflation increased to 3.3% in 2021, driven by fast-growing prices for

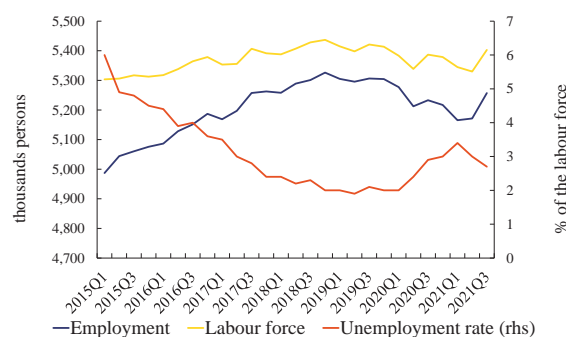
commodities, production inputs and adverse supply side developments. A sharp increase in regulated energy prices and the related indirect effects, faster food price growth, and increases in prices of services are expected to contribute to a further rise in inflation this year. As a result of extreme price pressures caused by the Russian invasion of Ukraine - especially in the area of commodities, and to a lesser extent, the related exchange rate depreciation of the Koruna (CZK) - inflation is very likely to increase noticeably, albeit temporarily, in the months ahead. This will bring the average annual increase in the Harmonised Index of Consumer Prices (HICP) to 11.7% in 2022. Well-anchored inflation expectations should prevent temporary price pressures from becoming entrenched and allow inflation to slow to 4.5% in 2023.

Czechia's labour market performance remained strong throughout the crisis, but employability and activation of certain groups remain a challenge. Czechia has shown strong labour market resilience, with unemployment and employment rates at the end of 2021 close to their pre-crisis levels and the unemployment rate among the lowest in the EU. The 'Antivirus I and II' short-time work schemes, both supported by the European Social Fund and the European Instrument for Temporary Support to Mitigate Unemployment Risks in an Emergency (SURE) (see Annex 3), have proven effective in protecting employment. At the end of 2021, there was a shortage of employees in most sectors – notably in manufacturing and in construction - and regions, and the unemployment rate fell. At the same time, a lack of skilled labour and skills shortages pose a significant barrier to the diffusion of innovation ⁽¹⁾.

⁽¹⁾ See Annex 9 and Innovation Diffusion in the Czech Republic (OECD, 2020).

There are disparities in labour market and social outcomes between population groups. The unemployment rate is set to decrease from 2.8% in 2021 to 2.6% in 2023 (Graph 1.1). However, the gender pay and employment gaps remain high, driven in part by the still limited provision of early childhood education and care. The employment impact of parenthood for women with young children remains among the highest in the EU. Improving the relatively low labour market outcomes for vulnerable groups, such as Roma people and people with low levels of skills, would help support the implementation of the European Pillar of Social Rights and reach the 2030 EU headline target on employment. The proportion of people at risk of poverty or social exclusion is among the lowest in the EU, though it remains high for specific groups (e.g. Roma, women aged over 65) and regions (e.g. North-West Bohemia). Dedicated support through the European Social Fund (ESF) helped boost employment and address skills needs.

Graph 1.1: Labour market indicators



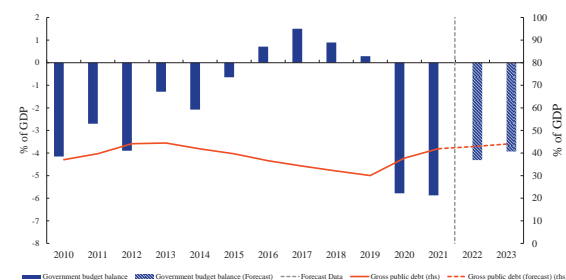
Source: Eurostat

Czech regions face different challenges. While richer regions suffer from housing unaffordability and pressures on the suburban transport networks, the poorest areas face issues arising from demographic pressures, social exclusion, and an insufficient focus on key areas such as energy transition innovation, and digitalisation (see Annex 15). The Prague region is the only region in Czechia classified as a strong innovator.

Czech public finances responded strongly during the pandemic but permanent measures will lead to a

deficit in the medium term. Before the start of the pandemic, from 2016 to 2019, the Czech budget had a slight surplus and the debt-to-GDP ratio had decreased to 30% (Graph 1.2), one of the lowest among EU Member States. At the start of the pandemic, the government took measures to support the most affected sectors, maintain employment and boost the economic recovery. Gradual withdrawal of these temporary support measures is envisaged in 2022 at the latest leading to a decrease in the general government deficit to 4.3% in 2022 from a higher 5.9% in 2021. Due to measures with permanent effect (for example the reduction of the personal income tax), the deficit is expected to remain at 3.9% in 2023, above pre-pandemic levels. The general government debt-to-GDP ratio is forecasted to increase from 41.9% in 2021 to 44.0% in 2023.

Graph 1.2: Key fiscal indicators



Source: Eurostat

Fiscal sustainability challenges are expected to intensify in the medium and long term due to population ageing. The debt-to-GDP ratio is expected to remain on an increasing path by 2032, though starting from a relatively low level from an EU perspective⁽²⁾. Together with a projected increase in age-related expenditure, these debt developments are expected to cause fiscal sustainability challenges (see Annex 19). In particular, a projected doubling of the old-age dependency ratio (according to European Commission-EPC 2021 Ageing Report) and the capping of the Czech retirement age will lead to the anticipated increase in total ageing costs of 6.1 pps by 2070, split between spending on pensions, healthcare and long-term care. These

⁽²⁾ Fiscal Sustainability Report 2021.

challenges will need to be addressed to safeguard the long-term sustainability of public finances.

Challenges related to labour costs, indebtedness, and competitiveness remain contained. Unit labour cost growth was high already before the pandemic. It accelerated further in 2020 on the back of labour hoarding associated with the COVID-19 crisis. However, with the recovery in productivity, unit labour cost growth is expected to moderate despite strong wage growth in 2021 and 2022. Further improvements in the business environment including reducing administrative barriers, tackling late payments and improving access to risk financing could all lead to further increases in productivity (see Annex 10). External vulnerabilities remained contained. Private debt increased in 2021 but remains contained. The banking sector is well capitalised and its profitability is well above the EU average, while the non-performing loans ratio is below the EU average.

Czechia has reduced its net greenhouse gas emissions in 2020 by 40% compared to 1990. Czechia's high reliance on Russian fossil fuels necessitates an accelerated roll out of renewables and energy efficiency investments, as well as diversification of its supply sources. A broad range of technologies, including solar, wind, geothermal, renewable hydrogen and sustainable bio-methane could be developed further to substitute for natural gas imports, particularly in households and industry. Czechia will face increasing challenges resulting from climate change natural hazards related to droughts and water stress, requiring more efforts in forest and water management.

House prices have grown continuously, leading to a potential overvaluation. Real house price growth remained high in 2020. The household saving rate increased in 2020 and remained high in 2021 and incomes are expected to continue growing in 2021 and 2022. As a result, house price growth is expected to continue and the available 2021 data indicate an acceleration. While monitoring is needed,

the price pressures could be partially mitigated by an expected increase in residential construction in 2021 and 2022, as well as a rise in interest rates for housing loans amid ongoing monetary tightening.

Czechia is progressing towards the Sustainable Development Goals (SDG), but still lags behind in some areas. While Czechia is improving its performance on several environmental sustainability indicators, the current status remains below the EU average (see Annex 1). In particular, Czechia is significantly below the EU average in terms of climate action, showing a lack of investment and reforms. These would also enable Czechia to realise the employment and social potential of the green transition (see Annex 6). Czechia made progress on all of the SDG indicators related to fairness, where it ranks amongst the best in EU. However, progress on life-long learning and gender-equality has been very limited despite Czechia implementing reforms and strategies in this area (e.g. Gender Equality Strategy for 2021 – 2030). In the areas of decent work and economic growth Czechia performs better than the EU average.

The invasion of Ukraine affects the economic outlook and social landscape

The Russian invasion of Ukraine poses risks to the outlook of the Czech economy. Czech exports to and imports from Russia represent 1.7% and 2.5% of the GDP respectively, while exports to and imports from Ukraine represent around 0.7% of GDP. Although trade links are minor, they are concentrated in a number of industries, notably in manufacturing, which hosts many energy intensive businesses characterised by complex supply chains (such as the automotive sector). Disruptions of imports therefore pose substantial risks, especially as regards energy. In 2020 for instance, all gas imports, 49% of crude oil imports and

70% of hard coal imports came from Russia ⁽³⁾.

Supply-side shortages and high energy prices have detrimental impacts on inflation and economic growth. The increase in energy and food prices (for which Russia and Ukraine represent a large portion of global exports) adds to pressure on inflation, as these items represent an above EU average proportion of the Czech consumer basket. The government has taken action to mitigate the adverse consequences of high inflation by increasing household allowances, after temporarily reducing VAT on energy in November and December of 2021. Nevertheless, high inflation will weigh on real wages and private consumption. Additionally, the price pressures and the heightened uncertainty, negatively affect investment.

The inflow of displaced persons from Ukraine presents both challenges and opportunities. Czechia has received over 300 000 people fleeing Ukraine. The Czech government responded swiftly to the Russia's invasion of Ukraine by providing humanitarian aid and introducing measures to accommodate those displaced from Ukraine, including medical coverage and support, unemployment benefits and retraining expenses. With a significant share being children, ensuring continuation of education through access to mainstream education emerged as priority. Czechia introduced a range of measures to provide access to childcare and schooling, however their availability is put at risk. Based on the current number of registered people displaced from Ukraine, it is expected that starting in September 2022, about 125 000 Ukrainian students could participate in the Czech education system. In the absence of additional measures, the provision of

childcare could reach its limits. Setting up systematic mapping of the availability of mainstream childcare and education systems is essential to ensure integration and to efficiently direct resources to ease pressure on certain territories. Short to medium-term integration of people fleeing Ukraine will have an impact on the government budget and lead to increased pressure on social and healthcare system due to staff shortages. In the medium to long term, the budgetary impact could ease if people displaced from Ukraine participate in the labour market, providing more dynamism in the context of labour and skills shortages of workers. As of 21 March, those who fled Ukraine and registered can work without any additional permits. Stable and sufficient funding for childcare provision will be instrumental to enabling the labour participation of women with children who constitute the majority of the adult population fleeing Ukraine. The spike in migration has structural implications for the overheated Czech housing market, adding to the housing affordability and energy poverty challenges.

The worsening macroeconomic situation will also have implications for plans to consolidate the budget. The effects of the invasion of Ukraine, the economic sanctions, the supply shortages and high levels of inflation are likely to dampen economic growth and add pressure on budgetary revenues. Simultaneously, increased spending is needed to manage the inflow of people fleeing Ukraine and to support households which are most affected by high energy prices. The consolidation of the government budget therefore faces new challenges after already registering deficits during the COVID-19 pandemic.

Czechia can benefit from exceptional flexibilities provided in the framework of CARE Regulation and additional pre-financing under REACT-EU to urgently address reception and integration needs for those fleeing Ukraine as a result of the Russian invasion.

⁽³⁾ Eurostat (2020), share of Russian imports over total imports of natural gas, crude oil and hard coal. For Czechia, total imports include intra-EU trade. Crude oil does not include refined oil products. Czechia has an indirect dependency on Russian imports through intra-EU trade. Accounting for the secondary dependence on Russian coal through intra-EU imports would lead to the estimation that Czechia has a 70% Russian import dependency on hard coal.

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

Czechia's Recovery and Resilience Plan (RRP), adopted by the Council on 8 September 2021, represents a total amount of EUR 7 035 billion support in grants (about 3.2% of 2019 GDP) (see Annex 2). The Recovery and Resilience Facility (RRF) Regulation provides for updates to grant allocations available to Member States in light of the aggregate change in real GDP for the 2020-2021 period, which is likely to increase Czechia's final total grant allocation from the RRF. Czechia is currently updating its plan in line with this increased allocation. This will allow Czechia to tackle more ambitiously some of the country's outstanding social and economic challenges, in particular those identified below.

The reform and investment agenda set out in the RRP is expected to help address a number of vulnerabilities in the Czech economy. The plan aims to facilitate the digital transition through a comprehensive set of measures. Key measures for digitalisation include the reform and digitalisation of construction permits, new curricula for digital education, advanced ICT equipment for schools, digital gap prevention, digital innovation hubs, digital skills and digitalisation of businesses, high capacity digital infrastructure, 5G technologies and the digitalisation of public administration. Czechia will also take part in multi-country projects on digitalisation, such as those involving digital innovation hubs and microelectronics. The measures will support the digitalisation of the economy and improve the business environment by facilitating progress towards the EU average, inter alia, on coverage by very high capacity networks and digital public services (see Annex 8).

Czechia's RRP supports the green transition, through measures to reduce

waste and improve the country's recycling infrastructure, support the renovation of residential and public buildings and the replacement of heating sources, improve public transport e-mobility and rail mobility, and reform forestry and watercourses management. In case of research and innovation, it remains important to enhance the effectiveness of the investments by reform processes. In addition, given the country's above average energy and carbon intensity (see Annex 5), Czechia will need to increase its ambition towards the green transition to make the economy less vulnerable to high carbon prices.

The RRP also covers further reforms and investment to tackle socio-economic and regional disparities, thereby supporting the implementation of the European Pillar of Social Rights. These measures will invest in healthcare infrastructure, promote preventive screening programmes and research, and facilitate the digitalisation of schools and the provision of digital skills and adult learning. Further measures support labour market participation of women by extending the capacity of childcare facilities and address social challenges by modernising the social care infrastructure and reforming long-term care in Czechia.

Work to deliver the measures set out in the RRP is underway. Czechia has to meet eight dedicated milestones to address the shortcomings identified in its audit and control system before submitting its first payment request to the Commission. Czechia's submission of the first payment request, upon the satisfactory fulfilment of the agreed milestones and targets, can unlock a further EUR 928 million in grants. At the time of publication, Czechia has reported a total of 13 milestones and 1 target as being completed according to regular bi-annual reporting required by the

RRF regulation. These measures led, among others, to digital equipment being purchased and distributed to disadvantaged pupils, increased road and rail safety, the launch of the European Digital Media Observatory hub for Central and Eastern Europe and the implementation of reforms such as new curricula for digital literacy and judicial reform. Reforms to the audit and control system are also being finalised.

Other measures are yet to be set in motion and need to be speeded up. In particular investments to upgrade and digitalise public administration, and investments in forest management and flood protection should be closely monitored and accelerated. In the coming year, the Czech RRP is expected to deliver numerous results such as digital innovation testing facilities, tutoring for pupils, additional reforested areas, water courses and water reservoirs, improved e-government services, new and modernised cycle paths and railway infrastructure and reforms to long-term care and to audit and control.

Box 1:

Key deliverables expected under the Recovery and Resilience Plan in 2022-2023

- Implementation of reforms on audit and control
- Implementation of reforms to long-term care
- Investment in railway infrastructure and road safety
- Launch of European Centre of Excellence in AI and regulatory sandboxes
- Investment in reforestation and small watercourse reservoirs

FURTHER PRIORITIES AHEAD

Beyond the challenges addressed by the RRP, Czechia faces additional challenges not sufficiently covered in the plan. Restoring the fiscal sustainability of public finances in the long term would help address the challenges posed by an ageing population, including pensions and healthcare sustainability. Strengthening the administrative and analytical capacity of public administration and increasing the quality of policymaking would improve the absorption of EU funds and support the implementation of public investment projects. In particular, implementing measures to decarbonise the Czech economy by closing the investment gap in renewables and streamlining the regulatory framework would substantially contribute to the country's transition towards environmental sustainability. Reducing regional disparities would stimulate long-term sustainable and inclusive growth boosting the economic potential of the less developed regions in Czechia. Addressing these challenges will also help to make further progress on the SDG indicators in the relevant underlying areas and reach the 2030 EU headline targets on employment, skills and poverty reduction.

Advancing the green transition and reducing dependence on Russian fossil fuels

Czechia is highly dependent on fossil fuel imports from Russia. While the use of natural gas made up 17.7% of the country's energy mix in 2020 (compared to an EU average of 24%), it still plays an important role in the industrial and heating sectors. To address this dependency, Czechia needs to diversify its import sources and leverage its interconnected gas network and available storage

capacity. Public support for investments in new natural gas-based installations, such as natural gas boilers, should be reconsidered. Czechia is also highly dependent on the Russia in terms of nuclear fuel supply.

Czechia's overall reliance on fossil fuels needs to be reduced through new decarbonisation measures. These should be informed by the 'Fit for 55' legislation, and the government's objective to stop using coal by 2033. The measures to mitigate climate change should also take account of biodiversity and ecosystems considerations.

Czechia needs to set more ambitious targets for the rollout of renewables. The latter could cover a large share of the natural gas shortfall by deploying a broad range of technologies, including solar, wind, geothermal, renewable hydrogen and sustainable bio-methane solutions in line with the relevant sustainability criteria. Czechia's 2030 goal for renewables is 22% (compared to current 17.3%). This modest level of ambition is in contrast with the recently proposed amendment of Renewable Energy Directive, which envisages Czechia's 2030 target increasing to 31%. While the RRP includes investments for the construction of 270MW of photovoltaic power in companies, this represents only a modest fraction of the total installed wind and solar power capacity, and is by far not sufficient to meet the increased level of ambition. Therefore, significant additional investment volumes in renewables are essential.

Complex, lengthy and costly administrative authorisation proceedings for renewables pose significant barriers to a faster rollout. Reforms are needed to address the restrictive spatial planning, the restrictively low threshold (20kW) for small-scale

renewables, the complex process for obtaining electricity production licenses and the lack of transparency on the availability of grid capacity. Czechia should streamline permitting processes for renewables (such as adopting a one-stop-shop) and increase thresholds for the exemption to building permits and the compulsory registration of renewable installation owners as entrepreneurs, while making access to available grid capacity simpler and more transparent. Measures to encourage renewable energy self-consumption, private purchasing agreements and energy communities should also be considered. Accelerating R&I and improving the collaboration between the private and public sectors on deploying clean technologies is also vital ⁽⁴⁾. In addition, it is necessary to undertake more grid investments to accommodate the increasing volume of renewables and increase its electricity network interconnection capacity ⁽⁵⁾.

Czechia also needs to step up its energy efficiency ambitions, prioritising the deep renovation of buildings connected to coal-based district heating ⁽⁶⁾ (see Annex 5). Czechia is one of the countries that are the furthest from delivering the energy saving measures required under Article 7 of the Energy Efficiency Directive, with only 68% of the required cumulative savings achieved as of 2018. Only 25% of single-family houses and 40% of multi-apartment buildings has been renovated by 2019 ⁽⁷⁾. While the RRP allocates EUR 1.4 billion to energy efficiency, the investments required by 2030 are estimated at a total of

around EUR 17 billion ⁽⁸⁾. These investments will also enable Czechia to meet the increased 2030 effort sharing target proposed as part of the Fit for 55 package.

More efforts are needed to address the socio-economic impacts of the coal phase out. Czechia should work with the Commission on adopting its territorial just transition plan, alongside measures to support workers at risk of redundancy in coal regions, as spelled out in its national energy and climate plan. Czechia's coal regions face higher levels of unemployment, poverty, indebtedness and early school leaving than the national average (targeted policy measures are to be taken according to Strategy 2030+). This is particularly the case in the Ústí and Karlovy Vary regions ⁽⁹⁾, where the disappearance of coal-based jobs might aggravate these challenges without an effective transition strategy.

The sustainability of the transport system should be improved given the growing emissions from this sector. A modal shift to rail and public transport should be encouraged along with investments to increase the proportion of electrified rail. Given that only 1.6% of new car registrations are electric vehicles in Czechia, measures should be taken to facilitate the use of electric vehicles, particularly in relation to the charging infrastructure.

Czechia should support the essential functions of the forest ecosystem by promoting biodiversity, carbon sinks and water retention capacity. Drought induced bark beetle outbreaks have recently contributed to increased net emissions from land use, land change and forestry (LULUCF) by 329% of kt CO₂ equivalent in 2019 ⁽¹⁰⁾. While the RRP

⁽⁴⁾ Performance on green patents has decreased over time but is almost at the EU average (see Annex 9).

⁽⁵⁾ Czechia's electricity interconnection capacity stands at 25%, which is above the EU 15% target, but significantly below its neighbours in the region.

⁽⁶⁾ Czechia has double the EU average energy intensity, namely 3.9 tCO₂equivalent (CO₂e) per capita above the EU average in 2019.

⁽⁷⁾ <https://energy.ec.europa.eu/system/files/2021-12/swd-on-national-long-term-renovation-strategies.pdf> (page 117)

⁽⁸⁾ <https://energy.ec.europa.eu/system/files/2021-12/swd-on-national-long-term-renovation-strategies.pdf> (page 19)

⁽⁹⁾ Ústecký region and Karlovarský region form together the NUTS 2 region of Severozápad (Northwest).

⁽¹⁰⁾ 13 565 kt CO₂ eq. in 2019.

allocates EUR 335 million to reforestation investments, large-scale reforms in forest management practices are still needed to reach the LULUCF net removal levels achieved before 2015. In view of Czechia's significant exposure to the adverse impacts of climate change, in particular floods and droughts, strategic policy support for nature-based solutions is needed. Czechia has the highest average size of agricultural holdings in the EU and practising large-scale agriculture is a major cause of natural habitat decline and low water retention ⁽¹¹⁾.

Czechia has the potential to intensify its work on the circular economy (see Annex 7). While the circular (secondary) use of material shows a steady increase and is above the EU average of 12.8% (from 7.6% in 2016 to 13.4% in 2020), resource productivity remained well below the EU average of EUR 2.09 per kg with EUR 1.19 generated per kg of material consumed in 2020. The landfill rate of municipal waste has only slightly decreased in the last decade, accounting for 49.2% in 2020, compared to an EU average of 22.7%.

Strengthening capacities for implementing EU funds

Over the next decade, Czechia is expected to absorb around EUR 30 billion of EU funds. This will help to address the key development challenges outlined in the country-specific recommendations addressed to Czechia. The country is well advanced in preparing for the 2021-2027 cohesion programmes. In the 2014-2020 programming period, Czechia has progressed with implementation, both in relation to contracting and spending, and no loss of funds is expected.

With regard to the implementation of EU funds, specific challenges remain at

both national and regional level. The two largest funding sources (see Annex 3), the RRF (EUR 7 billion) and cohesion policy funds (EUR 21.7 billion), will require increased capacity and efficient procedures to prepare and successfully implement public sector investment projects. The absorption of funds was lower than expected in relation to the next generation broadband networks and energy efficiency in the 2014-2020 period. Given the importance of the twin green and digital transitions, those are the areas for Czechia to concentrate its work in the 2021-2027 period. Otherwise, it could create macroeconomic risks and could represent an obstacle for the country's capacity to successfully use the opportunities created by the Green Deal and the Digital Europe Programme.

At central government level, several layers of administrative capacity require further attention. Overall, Czechia's public sector performance and government effectiveness rank below the EU average (see Annex 11). The country approved the 'Client-oriented Public Administration 2030' strategy aiming to improve the quality of public services, and its implementation is progressing. According to international indicators, the country performs less well on professionalism of civil service and on quality of policymaking.

Czechia also needs to improve its policymaking cycle, through better strategic planning, inter-ministerial coordination across and between tiers of government. Specific skills and competences need to be strengthened, particularly in the field of green and digital projects. This would also help to remove barriers hampering the development of a fully functioning innovation ecosystem. Strategic planning would need to build on the synergies between local needs and central objectives, as well as enhanced analytical capacity of the administration. The public procurement framework is another element that has an impact on the timely and correct implementation of public investment projects. Over time, this has improved but it requires further fine-tuning. Czechia is scoring below the EU average in

⁽¹¹⁾ Agricultural land is capable of holding only 5 billion m³ out of its total 8.4 billion m³ water retention capacity.

some important performance indicators such as the proportion of contracts awarded to a single bidder.

Targeted efforts at regional level could increase the efficiency of EU funds implementation.

Support for municipalities, cities and regions with low investment absorption rates is critical as these entities risk a further deterioration of the socio-economic situation due to the COVID 19 pandemic. The example of the Northwest region (Severozápad), the only region not converging to the EU average GDP (this remained below 65% in 2020), shows that low absorption capacity is a contributing factor to the growing disparities between the Northwest and other regions. The Czech government should set up a support scheme to build administrative capacity and aid the delivery of public sector and private sector investment projects, especially those that will facilitate the twin transition, and those in the regions with the lowest absorption rates. To this end, targeted technical assistance could be provided to regional entities and territorial partners.

Increasing housing affordability and accessibility of social housing

Housing affordability in Czechia has been among the lowest in the EU for the past 5 years ⁽¹²⁾. Acquiring property has become increasingly difficult for middle-income groups and young families, feeding the demand for rental property. According to the OECD housing survey, the limited mobilisation of available land reserves weighs on the housing development opportunities at local level in Czechia. Municipal rental stock is very limited and there are no incentives for rental or cooperative housing, which would increase the supply of affordable housing. Low affordability of housing is reflected in high and accelerating house price growth in

most Czech regions, potential house price overvaluation, high mortgage credit growth and a loosening of lending standards (see Annex 16). Limited access to housing and underused housing allowances impose substantial economic costs and efficiency losses on the housing market. Moreover, the integration of people fleeing Ukraine and staying in Czechia may further increase the demand for housing.

Affordability of housing is limited, in particular for low-income groups, due to the absence of a legal framework providing systemic support for social housing.

Lack of definition of roles at national and regional level impedes a comprehensive approach to social housing, with a high variability of the social housing stock and different eligibility criteria at municipal level ⁽¹³⁾. The proportion of social housing out of the total stock of rental dwellings is 0.4% in Czechia, well below the EU average of 7-8% ⁽¹⁴⁾. In recent years, investment in new social housing has relied mostly on EU funding. As a consequence, the number of households in need of housing is currently estimated at about 35 000 to 62 000 ⁽¹⁵⁾. Low-income families are expected to be disproportionately affected by the rise in energy prices, increasing housing expenses to up to 63% of their average budget ⁽¹⁶⁾. Overall, this leads to increasing costs for government budgets and the healthcare system as well as wider societal costs through negative impact on education and employment of the families affected ⁽¹⁷⁾.

⁽¹²⁾ Twelve annual salaries are needed to buy a standardised dwelling in Czechia, which is the highest in the EU. [Property Index 2021, Deloitte](#).

⁽¹³⁾ Peer Review on "Housing exclusion: the role of legislation?", 2020.

⁽¹⁴⁾ Affordable Housing Database (OECD).

⁽¹⁵⁾ Report on Housing Exclusion 2021 and Social Housing in the Czech Republic (Platform for Social Housing), 2021.

⁽¹⁶⁾ Impacts of the rising energy prices and proposal for reforms of the housing allowance, PAQ research

⁽¹⁷⁾ The direct fiscal cost, including healthcare spending, is estimated at CZK 2.5 billion per year. Wider societal costs through the impact on education and employment are estimated at CZK 11 billion per year. Cost of the Housing Need (European Priorities), 2021.

A broad reform ensuring adequate and affordable housing in Czechia is needed. As part of the reform efforts, incentivising the availability of land suitable for housing construction at municipal level, and the reconstruction and refurbishment of existing housing units can have positive effects on housing supply and prices. For instance, recent estimates show that reforms incentivising the renting and private development of housing could impulse utilisation of the vacant dwellings, currently 22% in rural and 10% in urban areas. Effective coordination between different public bodies would be key for the effective construction and provision of affordable and quality housing, including rental housing.

Ensuring the long-term sustainability of the public finances

Pre-crisis fiscal discipline provided the necessary buffer to support the economy during the crisis but since then public debt levels have increased and structural risks have intensified.

The initial public debt level was low compared with other EU countries (37.7% of GDP in 2020 for Czechia, compared to 91.8% EU average). Despite renewed economic pressures from Russia's invasion of Ukraine, a gradual consolidation of the public finances is expected to start this year, as COVID-19 support measures are withdrawn. While targeted fiscal measures might still be needed in the short term to support the economy, the implemented permanent expansionary fiscal measures including tax cuts are expected to lead to an increased structural deficit compared to the pre-pandemic situation. In addition, debt sustainability challenges will be more substantial in the long run, due to an ageing population and the associated increase in spending on pensions, healthcare and long-term care. The old-age dependency ratio (the ratio of people over 65 to people of working age 20-64) is

expected to double, rising from 33% in 2019 to a peak of 59.2% by 2060 ⁽¹⁸⁾.

Pension expenditure is projected to rise considerably beyond 2030. The increase in the retirement age to 65 (by 2030) helps address the medium-term pressure on public finances stemming from ageing population, but challenges remain beyond 2030. While the previous legislation envisaged increases in the retirement age also beyond 2030, a legislative change in 2017 set the maximum retirement age at 65. A mechanism to regularly assess the retirement age was also introduced. In 2019, the latest assessment of the Ministry of Labour and Social Affairs discussed the pros and cons of increasing the retirement age and recommended no retirement age change during this round of assessment procedure. The Government followed the recommendation and thus no legislative change was adopted. As a result, in the absence of any future change, fiscal sustainability challenges are expected to intensify beyond 2030. According to the 2021 Ageing Report, public pension spending is expected to increase from 8.8% of GDP in 2030 to 11.8% in 2060.

Multiple options are available to improve the fiscal sustainability of the pension system. Several elements of a potential pension reform have been discussed in the recent years and some priorities have been highlighted ⁽¹⁹⁾. Measures to address the fiscal sustainability of pension system will be needed to address the increasing pressures on public finances. These measures could include: adjusting the retirement age in line with the increase in life expectancy; incentivising the increase in participation rates of people over 60 (where these are below EU average); adjusting pension indexation rates to take into consideration the fiscal sustainability of the pension system or taking measures to increase labour supply. These measure could include, for example, supporting flexible/part-time work arrangements for

⁽¹⁸⁾ According to EC-EPC 2021 Ageing Report

⁽¹⁹⁾ see OECD Review of Pension System in Czech Republic (November 2020)

young people and elderly workers, strengthening the labour market integration of women with young children and of vulnerable groups such as Roma people or people with disabilities, and facilitating migration and refugees' integration.

Further improvements to the tax system could also improve the sustainability of public finances. Even if the newly appointed government does not envisage reversing the tax cuts legislated for in 2020 (including the reduction of the personal income tax), a better adjustment of the tax mix and measures to improve compliance could help improve the sustainability of public finances. At 36% of GDP in 2020, Czech tax revenues are still significantly below the EU average. Labour taxation rates have been lowered by a reduction in personal income tax but remain high for low-income earners which, together with personal debt and high level of foreclosures, discourage some low-income earners from seeking employment, and encourage undeclared work. Increases in taxes that are less detrimental to economic growth could help improve the sustainability of public finances. These include property taxes, which stand at 0.2% of GDP in Czechia compared with an EU average of 1.2%, or environmental taxes, which stand at 1.9% in Czechia compared with an EU average of 2.2%. Additionally, improving tax compliance could help increase tax revenues. Although it has decreased in recent years, the value-added tax gap of 14.3% is still among the largest in the EU (see Annex 17).

Stepping up the implementation of the 'Health 2030' strategy should further strengthen the resilience of the health system in Czechia. Despite significant improvement, Czechia still performs below the EU average in many areas related to health status and healthcare outcomes (see Annex 14). Treatable mortality is higher than the EU average and there are substantial regional differences in health status, for example life expectancy at birth for both men and women. Socio-economic conditions, including those linked to unhealthy lifestyles, are the main contributing factor. As a share of total

healthcare spending, spending on prevention has declined over the 2016-2019 period.

The projected increase in age-related public expenditure on healthcare puts pressure on long-term fiscal sustainability. In addition, care needs associated with multiple chronic diseases are expected to increase with an ageing population. While some reforms and investments taking place outside the RRP in long-term care, cancer screening and treatment and health workforce education will improve the resilience of the healthcare system, several challenges remain. An update of the long-term care system is necessary, with Czechia ranking as one of the OECD countries with the highest proportion of end-of-life care taking place in hospitals (63% in 2019 vs an OECD average of 50%). Public expenditure on healthcare is projected to increase by 0.9 pps of GDP by 2070, adding to costs associated with an ageing population.

Inefficient use of outpatient care is still prevalent in the system. While funding for outpatient care is high, avoidable hospital admissions in certain conditions are higher than the EU average. This indicates weaknesses in preventing risk factors, managing chronic conditions, and the insufficient integration of healthcare services. Despite some initiatives in this direction, primary care doctors do not play a gatekeeping role. Patients may consult specialists directly without any user fees, which partly explains the comparatively high number of outpatient consultations. The cost-effective use of medicines, medical devices and equipment in hospitals and outpatient care is less than optimal. The expanded functionality of the e-prescription system holds the potential to deliver efficiencies over time by enabling optimised prescribing practices. Further developing and implementing health technology assessments together with centralised procurement procedures for pharmaceuticals and other medical and non-medical goods may generate savings for payers, while ensuring access to high-quality products in the health system.

Fragmented governance and financing structures hinder the appropriate, efficient provision of long-term care services. Financial incentives still exist for prolonging the hospital treatment of patients in need of long-term care. The planned transformation of acute care into long-term care hospital beds is expected to increase transparency and save costs. If the provision of home care services is sufficient, a 40% increase in the reimbursement rate for home care services may reduce the length of hospital stays. The de-institutionalisation strategy currently being developed will be an important tool to comprehensively link social and health services, including concrete actions to develop community- and family-based social services.

KEY FINDINGS

Czechia's Recovery and Resilience Plan includes measures to address a series of its structural challenges through:

- Facilitating the digital transition via a comprehensive set of measures, including digitalisation of public administration and businesses, supporting the deployment of digital technologies (very high capacity networks or 5G), or developing digital skills.
- Incentivising the use of sustainable means of transport, promoting the transition to cleaner energy sources, and investing in recycling infrastructure, in biodiversity and reforming forestry and watercourses management.
- Supporting the renovation of residential and public buildings and the replacement of heating sources.
- Addressing social challenges by investing in healthcare and long-term care infrastructure and enhancing the excellence of research in medical sciences.
- Addressing labour market challenges by promoting development of digital skills and adult learning, and extending the childcare facilities' capacity to increase employment of women with children.
- Strengthening Czechia's anti-corruption framework, including through measures in the area of management and avoidance of conflict of interest.
- Boosting the innovation capacity of domestic businesses and strengthening the connection with the public research sector, as well as improving access to finance for small and medium-sized enterprises.

Beyond the reforms and investments in the RRP, Czechia would benefit from:

- Restoring the long-term fiscal sustainability of public finances, by addressing challenges to the sustainability of the pension and healthcare systems.
- Strengthening the capacity of public administration, at central and regional level, and improving public procurement efficiency, especially in the context of the RRP and cohesion policy implementation.
- Diversifying its fossil fuel imports and reducing the use of imported natural gas from Russia. Czechia needs to accelerate decarbonisation efforts through increased investments in renewables and energy efficiency and by improvements in the regulatory, permitting and grid access framework for the rollout of new renewable installations.
- Ensuring the effective provision of social and affordable housing to address affordability challenges and tackle poverty and social exclusion, as well as the integration of people fleeing Ukraine.

ANNEXES

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CROSS-CUTTING PROGRESS INDICATORS

ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

This Annex assesses Czechia's progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability. The 17 SDGs and their related indicators provide a policy framework under the UN's 2030 Agenda for Sustainable Development. The aim is to end all forms of poverty, fight inequalities, and tackle climate change, while ensuring that no one is left behind. The EU and its Member States are committed to this historic global framework agreement and to playing an active role in maximising progress on the SDGs. The graph below is based on the EU SDG indicator set developed to monitor progress on SDGs in an EU context.

While Czechia has improved its performance on several environmental sustainability indicators (SDGs 7, 9, 12, 13) or is even performing very well on some (SDGs 2, 11), there is room for improvement on others (SDGs 6, 15). In particular, Czechia performs significantly below the EU average on climate action, showing a lack of investment and reform to facilitate the green transition (SDG 13 stands at 78.4% below EU average). Czechia has also significant untapped potential with regard to reaping the economic benefits from innovation and clean energy (SDGs 7, 9). For example, Czechia's level for indicator for affordable and clean energy status is 14.3% below the EU average. Czechia is improving in indicators for life on land and clean water and sanitation (SDGs 6, 15), but they also remain below the EU average. Sustainable cities and communities (SDG 11) is the only environmental sustainability indicator where Czechia is progressing with its status being better than EU average.

Czechia performs very well on several SDG indicators related to fairness (SDG 1, 2, 8, 10) and is improving on others (SDG 3, 4, 5), although at an uneven pace. Czechia is the best performer in the EU with respect to some of the poverty and inequality indicators (SDGs 1, 10), which can be attributed both to low wage dispersion and Czechia's social benefits system. Czechia improved only marginally on the quality education indicators (SDG 4). Access to life-long learning – already below the EU average – has constantly declined since 2017 and early school leaving, although still low in comparison with other EU

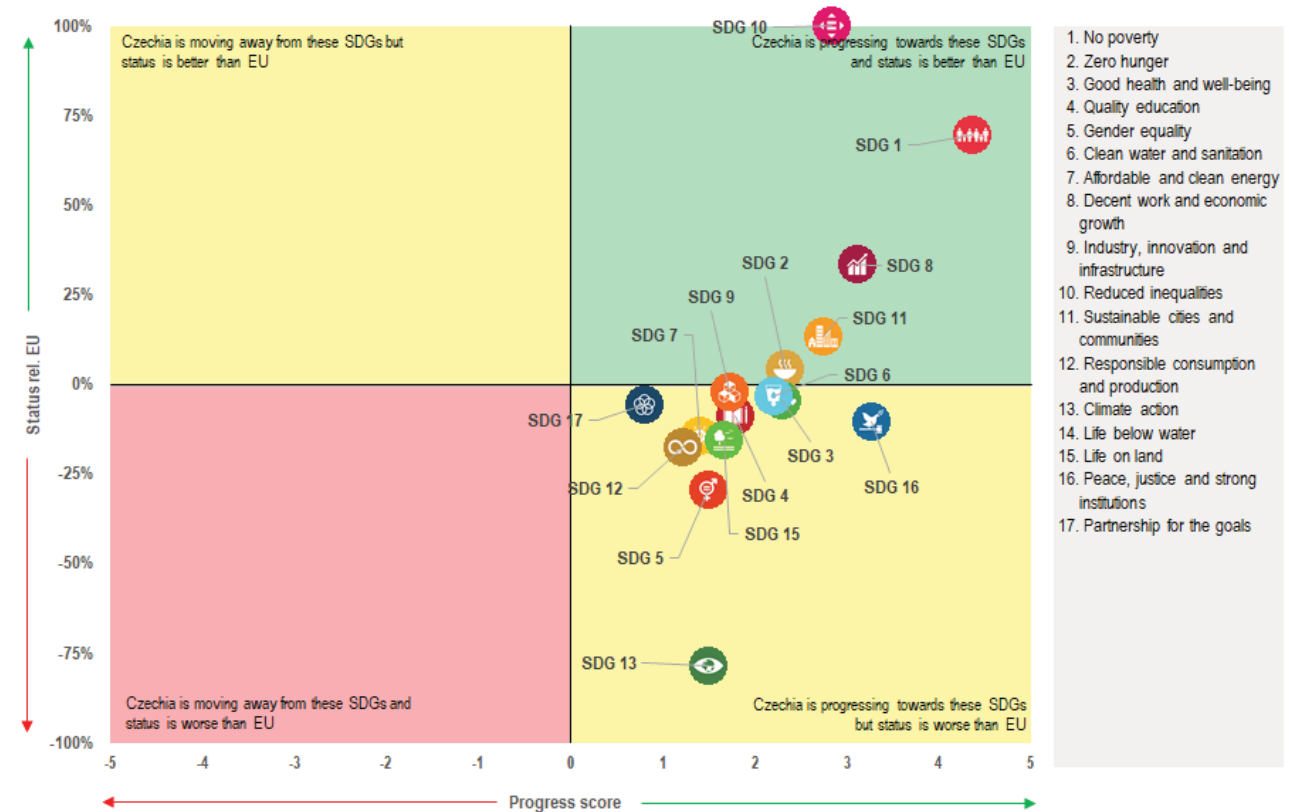
countries, has increased (4.9% in 2011, 7.5% in 2020). The weakest performance (29.6% below EU average) in the fairness category relates to gender equality (SDG 5) where – despite some improvement in recent years – Czechia lags behind its EU peers in terms of the gender pay gap (16.4% in 2020 compared to EU average 13%), the employment gap, share of managerial positions held by women and the impact of parenthood on employment. The RRP includes measures to improve digital skills and ensure inclusiveness at all levels of education, notably by expanding pre-school education, and supporting disadvantaged pupils and schools. (Components 3.1, 3.2 and 3.3).

Czechia performs very well on some SDG indicators related to productivity (SDG 8) and is improving on others (SDGs 4, 9). Public R&D spending stagnated in recent years, having reached only 0.77% of GDP in 2020, which is significantly below the EU average (2.32%). The number of new graduates in sciences and engineering per thousand of population shows a steady decline over the past decade, having reached 10.9 in 2019, compared to an EU average of 16.3. Tertiary educational attainment, a crucial element of improving the quality of human capital and transitioning to a knowledge-based society, improved from 31% to 33% between 2015 and 2020, and thus remains markedly below the EU average of 40.5%. The proportion of households with a high capacity network connection was at 33% in 2019, which is one of the lowest coverage rates in the EU and significantly below the EU average of 59.3%. However, at least 60% of adults had at least basic digital skills in 2021, which is above the EU average of 54%. Investments in digital infrastructure and educational reforms outlined in the RRP are expected to boost these sources of long-term productivity.

Czechia performs very well on the indicator for decent work and economic growth (SDG 8) and is improving on peace, justice and strong institutions (SDG 16). Real GDP per capita in Czechia has increased, reaching 17 340 EUR in 2020 in real terms (up from 16 290 EUR in 2015), but it is still substantially below the EU average of EUR 26 380 in 2020, with convergence slowing even at comparable purchasing power standards. Between 2010

and 2019, GDP per capita in purchasing power standards compared to the EU average increased from 84% to 93%. Even during the pandemic, unemployment has remained low, reaching 2.60% in 2020 compared to an

Graph A1.1: Progress towards SDGs in Czechia in the last five years



For detailed datasets on the various SDGs see the annual ESTAT report 'Sustainable development in the European Union', <https://ec.europa.eu/eurostat/product?code=KS-09-22-019>; Extensive country specific data on the short-term progress of Member States can be found here: [Key findings - Sustainable development indicators - Eurostat \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=main&init=1&language=en&plugin=1)
Source: Eurostat, latest update of 28 April 2022. Data mainly refer to 2015-2020 and 2016-2021

average of 4.6% between 2013 and 2018.

ANNEX 2: RECOVERY AND RESILIENCE PLAN - IMPLEMENTATION

The Recovery and Resilience Facility (RRF) is the centrepiece of the EU's efforts to support its recovery from the COVID-19 pandemic, fast forward the twin transition and strengthen resilience against future shocks.

Czechia submitted its recovery and resilience plan (RRP) on 2 June 2021. The Commission's positive assessment on 19 July and Council's approval on 8 September paved the way for disbursing EUR 7.035 billion in grants under the RRF over 2021-2026. The financing agreement was signed on 22 September 2021. Table A2.1 sets out the plan's key elements.

The share of funds contributing to each of the RRF's six policy pillars is outlined in the graph below.

The progress made by Czechia in implementing its plan is published in the Recovery and Resilience Scoreboard. The Scoreboard also gives a transparent overview of progress on implementing the RRF as a whole.

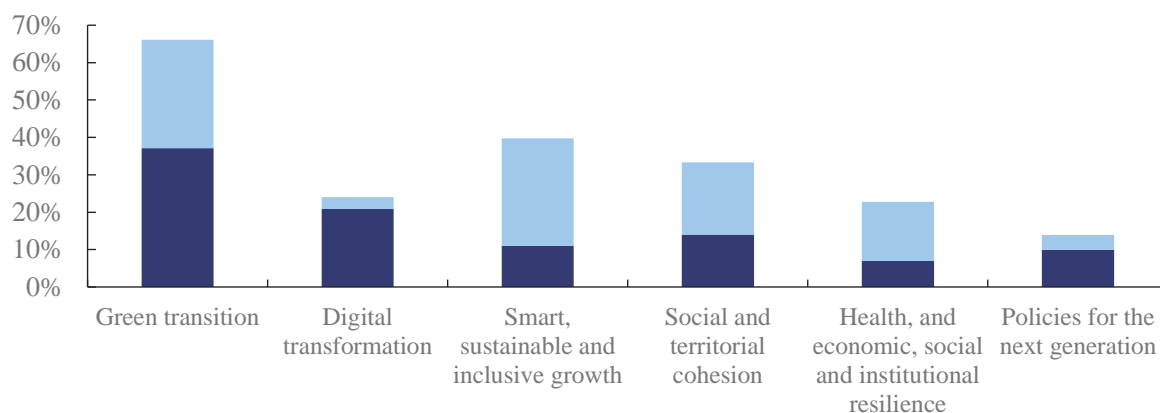
Table A2.1: Key elements of the Czechian RRP

Total allocation	EUR 7 billion in grants (3.1% of 2019 GDP)
Investments and Reforms	85 investments and 37 reforms
Total number of Milestones and Targets	244
Estimated macroeconomic impact (1)	Raise GDP by 1.2 % by 2026 (0.3% in spillover effects)
Pre-financing disbursed	EUR 915 million (September 2021)
First instalment	Czechia did not yet submit a first payment request

(1) See Pfeiffer P., Varga J. and in 't Veld J. (2021), "Quantifying Spillovers of NGEU investment", European Economy Discussion Papers, No. 144 and Afman et al. (2021), "An overview of the economics of the Recovery and Resilience Facility", Quarterly Report on the Euro Area (QREA), Vol. 20, No. 3 pp. 7-16.

Source: European Commission 2022

Graph A2.1: Share of RRF funds contributing to each policy pillar



(1) Each measure contributes towards two policy areas of the six pillars, therefore the total contribution to all pillars displayed on this chart amounts to 200% of the Czechian RRP. The bottom part represents the amount of the primary pillar, the top part the amount of the secondary pillar.

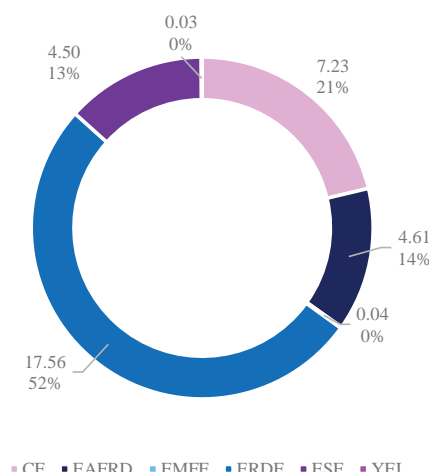
Source: RRF Scoreboard https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

ANNEX 3: OTHER EU INSTRUMENTS FOR RECOVERY AND GROWTH

The EU's budget of more than EUR 1.2 trillion for 2021-2027 is the investment lever to help implement EU priorities. Underpinned by an additional amount of about EUR 800 billion through NextGenerationEU and its largest instrument, the Recovery and Resilience Facility, it represents significant firepower to support the recovery and sustainable growth.

In 2021-2027, EU cohesion policy funds ⁽²⁰⁾ will support long-term development objectives in Czechia by investing EUR 23.41 billion ⁽²¹⁾ including EUR 1 641.5 million from the Just Transition Fund to alleviate the socio-economic impacts of the green transition in the most vulnerable regions. The 2021-2027 cohesion policy funds partnership agreements and programmes are designed taking into account the 2019-2020 CSRs and investment guidance provided within the context of the European Semester, ensuring synergies and complementarities with other EU funding. In addition, Czechia will benefit from EUR 5.6 billion support for the 2023-27 period from the Common Agricultural Policy, which supports social, environmental, and economic sustainability and innovation in agriculture and rural areas, contributing to the European Green Deal, and ensuring long-term food security.

Graph A3.1: 2014-2020 European Strategic and Investment Funds - Total budget by fund



bn EUR in current prices, % of total
The data for the EAFRD and REACT-EU refer to the period 2014-2022

Source: European Commission, Cohesion Open Data

In 2014-2020, European Structural and Investment Funds (ESIF) for Czechia are set to invest EUR 25.46 billion ⁽²²⁾ from the EU budget. The total investment including national financing amounts to EUR 33.97 billion (graph 3.1), representing around 2.53% of GDP for 2014-2020 and 48.79% of public investment ⁽²³⁾. By 31 December 2021, 109% of the total was allocated to specific projects and 68% was reported as spent, leaving EUR 10.83 billion to be spent by the end of 2023 ⁽²⁴⁾. Among the 11 objectives the most relevant ones for cohesion policy funding in Czechia are research and innovation, low-carbon economy, environment protection and resource efficiency, network infrastructure in transport and energy, (in total 19 billion). By the end of 2020, cohesion policy investments had supported 10 989 of enterprises, 10 676 direct jobs, 735 km of reconstructed roads. Educational and vocational training, social

⁽²²⁾ ESIF includes cohesion policy funds (ERDF, ESF+, CF, Interreg), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). According to the 'N+3 rule', the funds committed for the years 2014-2020 must be spent by 2023 at latest (by 2025 for EAFRD). Data source: [Cohesion Open data](https://cohesiondata.ec.europa.eu/countries/CZ), cut-off date 31.12.2021 for ERDF, ESF+, CF, Interreg; cut-off date 31.12.2020 for EAFRD and EMFF

⁽²³⁾ Public investment is gross fixed capital formation plus capital transfers, general government.

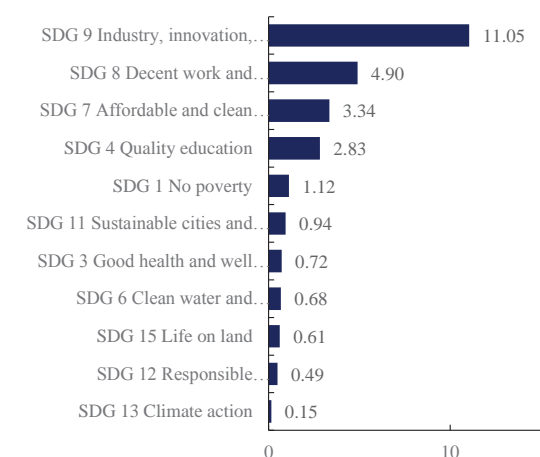
⁽²⁴⁾ Including REACT-EU. ESIF data on <https://cohesiondata.ec.europa.eu/countries/CZ>

⁽²⁰⁾ European Regional Development Fund (ERDF), European Social Fund+ (ESF+), Cohesion Fund (CF), Just Transition Fund (JTF), Interreg.

⁽²¹⁾ Current prices, source: [Cohesion Open Data](https://cohesiondata.ec.europa.eu/countries/CZ)

inclusion and sustainable and quality employment feature prominently among the 11 objectives for cohesion policy funding in Czechia (totalling EUR 7.17 billion). The 2014-2020 ESF focused on employment, female labour market participation, social inclusion and education.

Graph A3.2: Cohesion policy contribution to the SDGs (EUR billion)



Source: European Commission, DG REGIO

Cohesion policy funds already substantially contribute to meeting the objectives set in the SDGs. In Czechia, cohesion policy funds support 11 of the 17 SDGs with up to 95% of the expenditure contributing to meeting the goals.

The REACT-EU instrument (Recovery Assistance for Cohesion and the Territories of Europe) under NextGenerationEU provided EUR 836.3 million of additional funding to 2014-2020 cohesion policy allocations for Czechia to ensure a balanced recovery, foster convergence and provide vital support for regions following the impact of the coronavirus outbreak. REACT-EU provided support in Czechia to reinforce the primary healthcare, equip integrated rescue systems, promote energy efficiency in the social infrastructure and reduce material deprivation with direct food delivery.

The Coronavirus Response Investment Initiative⁽²⁵⁾ provided the initial EU

⁽²⁵⁾ Re-allocating ESIF resources according to Regulation (EU) 2020/460 of the European Parliament and of the Council of 30 March 2020, and Regulation (EU) 2020/558 of the European Parliament and of the Council of 23 April 2020.

emergency support to Czechia in relation to the COVID-19 pandemic. It introduced extraordinary flexibility enabling Czechia to re-allocate resources to support enterprises (275 million). This included shifting resources to working capital for SMEs and support for digitising the public administration (digitisation of spatial planning and construction procedures). Czechia also benefited from the temporary 100% EU financing of incurred measures in Cohesion policy, with approximately EUR 64 million in 2021 through 100% co-financing.

Czechia received support under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) to finance short-time work schemes and similar measures. The Council granted financial assistance under SURE to Czechia in September 2020 for a maximum of EUR 2.0 billion, which was disbursed by 30 March 2021. SURE is estimated to have supported approximately 30% of workers and 20% of firms for at least one month in 2020, primarily in manufacturing, wholesale and retail trade, and accommodation and food services. Czechia is estimated to have saved a total of EUR 0.04 billion on interest payments as a result of SURE's lower interest rates.

The Commission provides tailor-made expertise via the Technical Support Instrument to support Czechia in designing and implementing growth-enhancing reforms, including implementing its RRP. Since 2016, Czechia has received assistance through 58 technical support projects. Projects delivered in 2021 aimed for example to improve the country's digital infrastructure and set up and operationalise a national coordinator for intelligent mobility. The Commission also assisted Czechia in implementing specific reforms and investments in its RRP, for instance improving the overall RRP monitoring, coordination and implementation frameworks and assisting with the application of the "do no significant harm" principle. In 2022, new projects will start to support the overall RRP audit and control systems, the RRP communication strategy and implement digital transformation.

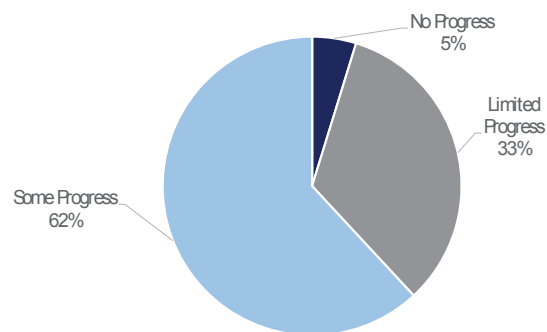
Czechia benefits also from other EU programmes. These include the Connecting Europe Facility, which allocated EU funding of

EUR 1.1 billion to specific projects on strategic transport networks, and Horizon 2020, which allocated EU funding of EUR 501.6 million.

ANNEX 4: PROGRESS IN THE IMPLEMENTATION OF COUNTRY-SPECIFIC RECOMMENDATIONS

The Commission assessed the 2019-2021 country-specific recommendations (CSRs)⁽²⁶⁾ addressed to Czechia in the context of the European Semester. The assessment takes into account the policy action taken by Czechia to date⁽²⁷⁾, as well as the commitments in the Recovery and Resilience Plan (RRP)⁽²⁸⁾. At this early stage of the RRP implementation, overall 62% of the CSRs focusing on structural issues in 2019 and 2020 have recorded “some progress”, while 33% recorded “limited progress” and 5% “no progress” (see Graph A4.1). Considerable additional progress in addressing structural CSRs is expected in the years to come with the further implementation of the RRP.

Graph A4.1: Czechia’s progress on the 2019-2020 CSRs (2022 European Semester cycle)



Source: European Commission

⁽²⁶⁾ 2021 CSRs: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021H0729%2822%29&qid=1627675454457>
2020 CSRs: https://eur-lex.europa.eu/search.html?textScope=ti&lang=en&scope=EURLEX&qid=1526385017799&type=quick&AU_CODE=D=CONSIL&DD_YEAR=2020&andText=recommendation&DD_MONTH=07
2019 CSRs: https://eur-lex.europa.eu/search.html?textScope=ti&lang=en&scope=EURLEX&qid=1526385017799&type=quick&AU_CODE=D=CONSIL&DD_YEAR=2019&andText=recommendation&DD_MONTH=07

⁽²⁷⁾ Incl. policy action reported in the National Reform Programme, as well as in the RRF reporting (bi-annual reporting on the progress with implementation of milestones and targets and resulting from the payment request assessment).

⁽²⁸⁾ Member States were asked to effectively address all or a significant subset of the relevant country-specific recommendations issued by the Council in 2019 and 2020 in their RRP. The CSR assessment presented here takes into account the degree of implementation of the measures included in the RRP and of those done outside of the RRP at the time of assessment. Measures foreseen in the annex of the adopted Council Implementing Decision on the approval of the assessment of the RRP which are not yet adopted nor implemented but considered as credibly announced, in line with the CSR assessment methodology, warrant “limited progress”. Once implemented, these measures can lead to “some/substantial progress” or “full implementation”, depending on their relevance.

Table A4.1: Summary table on 2019, 2020 and 2021 CSRs

Czechia	Assessment in May 2022*	RRP coverage of CSRs until 2026
2019 CSR1	Limited Progress	
Improve long-term fiscal sustainability of the pension and health-care systems.	No Progress	Relevant RRP measures planned as of 2021, 2023, 2024, and 2025.
Adopt pending anti-corruption measures.	Limited Progress	Relevant RRP measures planned as of 2021, 2023, 2024 and 2026.
2019 CSR 2	Some Progress	
Foster the employment of women with young children, including by improving access to affordable childcare, and of disadvantaged groups.	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024 and 2025.
Increase the quality and inclusiveness of the education and training systems, including by fostering technical and digital skills and promoting the teaching profession.	Some Progress	Relevant RRP measures planned as of 2020, 2022 and 2025.
2019 CSR 3	Some Progress	
Focus investment-related economic policy on transport, notably on its sustainability	Some Progress	Relevant RRP measures planned as of 2022 and 2025.
, digital infrastructure	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2025.
, and low carbon and energy transition, including energy efficiency , taking into account regional disparities.	Some Progress	Relevant measures planned as of 2021, 2022, 2024 and 2026.
Reduce the administrative burden on investment	Limited Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2023 and 2026.
and support more quality-based competition in public procurement.	Some Progress	
Remove the barriers hampering the development of a fully functioning innovation ecosystem.	Some Progress	Relevant RRP measures planned as of 2022 and 2025.
2020 CSR1	Some Progress	
In line with the general escape clause, take all necessary measures to effectively address the pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore	Not applicable
Ensure the resilience of the health system, strengthen the availability of health workers, primary care and the integration of care, and deployment of e-health services.	Some Progress	Relevant RRP measures planned as of 2021, 2022 and 2024.
2020 CSR2	Some Progress	
Support employment through active labour market policies,	Some Progress	Relevant RRP measures planned as for 2022 and 2025.
the provision of skills, including digital skills, and access to digital learning.	Limited Progress	Relevant RRP measures planned as of 2020, 2021, 2024 and 2025.
2020 CSR 3	Limited Progress	
Support small and medium-sized enterprises by making greater use of financial instruments to ensure liquidity support,	Some Progress	Relevant RRP measures planned as of 2022.
reducing the administrative burden and improving e-government.	Limited Progress	Relevant RRP measures planned as of 2021, 2022 and 2023.
Front-load mature public investment projects and	Some Progress	
promote private investment to foster the economic recovery.	Some Progress	Relevant RRP measures planned as of 2023.
Focus investment on the green and digital transition, in particular on high-capacity digital infrastructure and technologies,	Limited Progress	Relevant RRP measures planned as of 2021, 2022, 2025.
clean and efficient production and use of energy,	Some Progress	Relevant measures planned as of 2021, 2022, 2024 and 2026.
and sustainable transport infrastructure, including in the coal regions.	Limited Progress	Relevant RRP measures planned as of 2022 and 2025.
Ensure access to finance for innovative firms and improve public-private cooperation in research and development.	Limited Progress	Relevant RRP measures planned as of 2022 and 2025.
2021 CSR1	Some Progress	
In 2022, maintain a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Some Progress	Not applicable
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Some Progress	Not applicable
At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Substantial Progress	Not applicable
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.	No Progress	Not applicable

* See footnote 28.

Source: European Commission

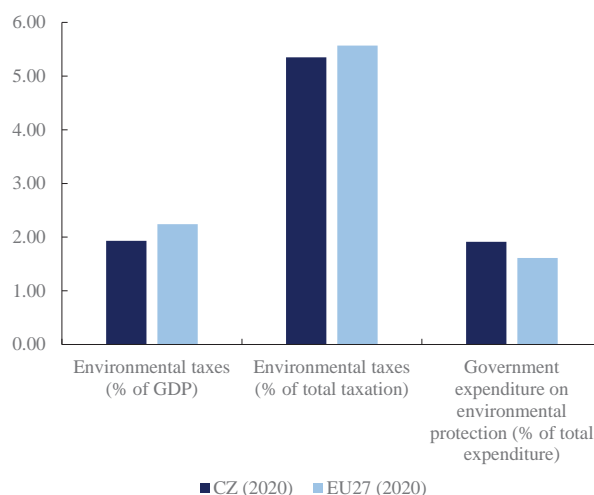
The European Green Deal intends to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. This Annex offers a snapshot of the most significant and economically relevant developments in Czechia in relation to the European Green Deal's building blocks. It should be viewed together with Annex 6 on the employment and social impact of the green transition and Annex 7 for circular economy aspects of the Green Deal.

In recent decades, Czechia has made considerable progress in laying the foundation of a low-carbon economy. The country's energy and carbon intensity, however, remains higher than the EU average. This underlines that there are still significant opportunities to make Czechia's economy more resilient and sustainable. Between 1990 and 2020, economy-wide greenhouse gas emissions (excluding those from land use) decreased by 40% and these are projected to significantly decrease in the years ahead. The production of goods and services in Czechia remains nevertheless very carbon and energy intensive. Czechia's Land Use, Land Use Change and Forestry sink has significantly decreased since 2018, and it is not projected that forests will absorb more than they emit until 2026. The country's emissions not covered by the EU Emissions Trading System⁽²⁹⁾ in 2020 respected the target of limiting increases to 9% compared to 2005. Emissions have decreased in most sectors, but increased in road transport and remained stable in agriculture. In its National Energy and Climate Plan, Czechia intends to achieve reductions in line with its current ESR target for 2030 of -14%. The proposed new ESR target for Czechia is -26%. In its Recovery and Resilience Plan (RRP), Czechia allocates 42% of the plan to climate objectives and outlines reforms and investments to make progress on

the transition to a more sustainable, low-carbon and climate-resilient economy⁽³⁰⁾.

With respect to fiscal indicators, Czechia performs below the EU average. Environmental tax revenues as percentage of total taxes as well as in terms of GDP has been decreasing for some years now and especially in the areas of pollution, resources and transport is very low⁽³¹⁾. The share of expenditure on environmental protection in total government expenditure is also decreasing, but remains above the EU average. The Czech government has a low to medium exposure to uninsured climate induced damages, although insurance cover for wildfires is particularly low.

Graph A5.1: Fiscal aspects of the green transition Taxation and government expenditure on environmental protection



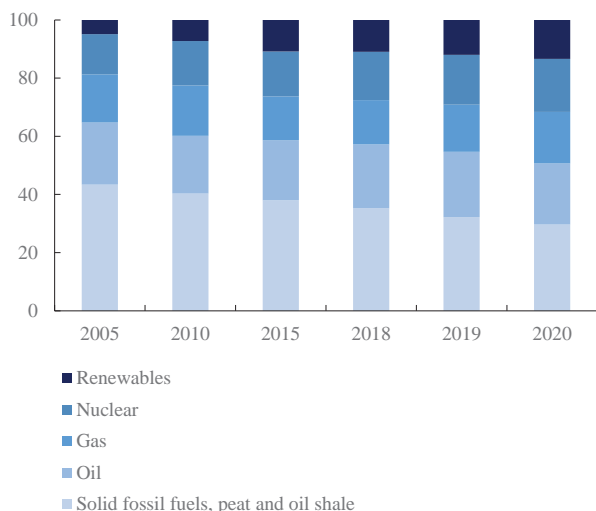
Source: Eurostat

⁽²⁹⁾ Buildings, transport, agriculture, waste and small industry.

⁽³⁰⁾ The share of financial allocation contributing to climate objectives has been calculated using Annex VI of the RRF Regulation.

⁽³¹⁾ For more information on taxation see Annex 17.

Graph A5.2: Thematic – Energy
Share in energy mix (solids, oil, gas, nuclear, renewables)



(1) The energy mix is based on gross inland consumption, and excludes heat and electricity. The share of renewables includes biofuels and non-renewable waste.

Source: Eurostat.

At 29.6%, Czechia has the second highest share of coal in its energy mix in the EU. Coal is therefore the most important source of energy in Czechia and the dominant source in electricity production, district heating and in the industry. Energy intensity in Czechia is one of the highest in the EU, which is more due to the low value added per energy consumed, rather than a high level of industrialisation. In fact only 1.7 percentage points more energy is consumed in the Czech industry (27.3%) than in the EU industry (25.6%). Further upwards revision in terms of renewables and energy efficiency targets will be needed for Czechia to be in line with the 'Fit for 55' objectives. For example, there has been only marginal progress on renewable electricity production since 2013. Significant barriers to the deployment of renewable energy sources arise from administrative authorisation processes, especially in relation to the building and zonal permitting process, which is regarded as too complex and lengthy. According to 2020 data, Czechia had 18.2% of nuclear energy in its energy mix and the government aims to increase this share. Natural gas accounted for 17.7% of Czechia's energy mix, 100% of which was imported from Russia. Czechia will face a particular challenge in substituting coal by renewable alternatives in the district heating sector, in order to enable the expected coal exit by 2033. Further use of biomass is also

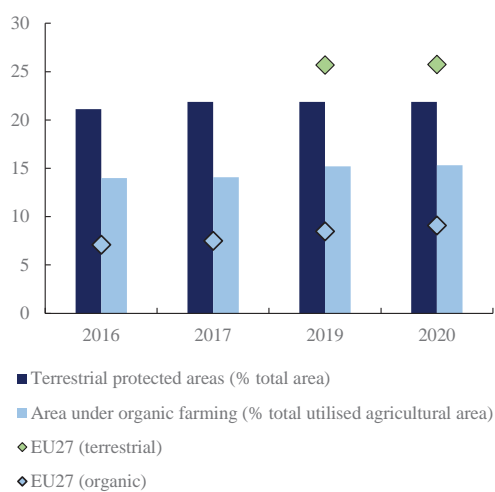
expected (in the energy, transport and heating sectors), which requires investments to bioenergy to be made in line with the 'do no significant harm' principle.

In terms of biodiversity and ecosystem health, there is room for improvement. With regard to the conservation status for species and habitat in the Natura 2000 network protected under the Habitats and Birds Directives, the proportion of habitats and species in a good conservation status increased slightly between the two reporting periods (2007-2012 and 2013-2018). However, the proportion of habitats considered to be in a bad conservation status increased and the proportion of species whose status remained unchanged decreased. Czechia has more land being farmed organically than the EU average. Although the agricultural sector's share in total greenhouse gas emissions remained stable (and well below the EU average), net agricultural emissions production have increased since the early 2010s. This is driven by increasing non-CO₂ emissions from livestock (enteric fermentation) and from agricultural soils, combined with a dramatic decrease in CO₂ removals by forests in the land use, land use change and forestry (LULUCF) sector. Reducing ammonia emissions from agriculture continues to be an important goal for the Czech farming sector. Net land take can be seen as a measure of land use change, a significant pressure on nature and biodiversity, and an environmental pressure on people living in urbanised areas. Although net land take almost halved between 2006-2012 and 2012-2018, it remains higher than the EU average. Czechia has not yet committed to setting Land Degradation Neutrality targets under the United Nations Convention to Combat Desertification. Therefore, Czechia needs to implement urgently a reform to create multigenerational forests included in the national Recovery and Resilience Plan to build forests resilient to climate change.

Further investments will also be needed to improve the water status for the remaining water bodies in all river basins in Czechia. Despite progress on reaching EU water policy objectives set out in the Water Framework Directive, it is not certain, whether this progress is sufficient to meet the obligations until 2021, i.e. for all water bodies to have a good water status. In terms of the water

exploitation index, Czechia has one of the lowest scores in the EU at 19.53%, which is only slightly less than the 20% that is generally considered as an indication of water scarcity. Securing good quality surface and groundwater is vital to becoming more resilient to increasing floods and droughts. It is therefore important that there is sufficient uptake and upscaling of measures to manage drought in the national Recovery and Resilience Plan which are linked to a reform to bring about a systemic improvement of water retention in the landscape.

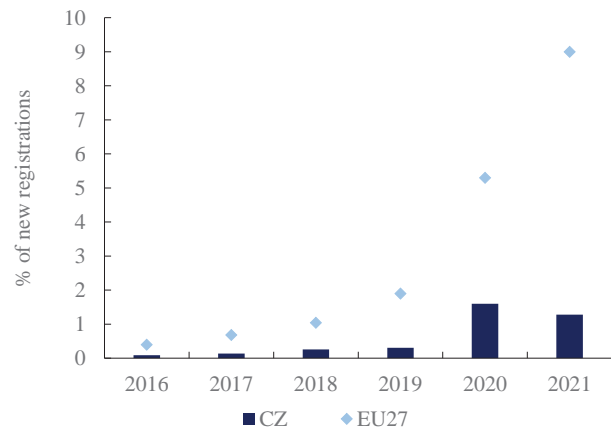
Graph A5.3: Thematic – Biodiversity
Terrestrial protected areas and organic farming



(1) For terrestrial protected areas data for 2018, and data for the EU average (2016, 2017) is lacking.

Source: EEA (terrestrial protected areas) and Eurostat (organic farming).

Graph A5.4: Thematic – Mobility
Share of zero emission vehicles (% of new registrations)



(1) Zero emission vehicles (passenger cars) include battery and fuel cell electric vehicles (BEV, FCEV)

Source: European Alternative Fuels Observatory.

Air quality in Czechia continues to be a cause for concern. The number of years of life lost due to fine particulate matter (PM_{2.5}) has remained stable since 2015 and is higher than the EU average. However, the number of years of life lost due to nitrogen dioxide concentrations has significantly decreased since 2015 and is well below the EU average, despite the continued growth in GDP. According to the latest projections submitted under Article 10(20) of the National Emission reduction Commitments Directive (NECD), Czechia expects to reach its emissions reduction commitments for all air pollutants covered by the Directive for the 2020-2029 period and for 2030 onwards. For the year 2020, values exceeding the limits set by the Ambient Air Quality Directive were registered for particulate matter (PM₁₀) in two air quality zones. In addition, the target values for ozone concentration have not been met in several air quality zones.

In terms of sustainable mobility, Czechia has room for improvement. The market development for zero emission road mobility has been very modest in Czechia to date, but has seemed to pick up pace in the last years. Only a third of the Czech railway network is electrified.

Table A5.1: Indicators underpinning the progress on the EU Green Deal from a macroeconomic perspective

						Target		Distance			'Fit for 55'		
			2005	2019	2020	2030	WEM	WAM	Target	Distance	2030	WEM	WAM
Progress to policy targets	Non-ETS GHG emission reduction target ⁽¹⁾	MITCO2 eq. % pp ⁽²⁾	65.0	-2%	4%	-14%	6	22	-26%	-6	10		
			2005	2016	2017	2018	2019	2020	National contribution to 2030 EU target				
	Share of energy from renewable sources in gross final consumption of energy ⁽¹⁾	%	7%	15%	15%	15%	16%	17%	22%				
	Energy efficiency, primary energy consumption ⁽¹⁾	Mtoe	42.5	39.7	40.4	40.5	39.8	37.5	41.4				
	Energy efficiency, final energy consumption ⁽¹⁾	Mtoe	26.1	24.8	25.5	25.3	25.3	24.5	23.7				
Fiscal and financial indicators			CZECHIA						EU				
			2015	2016	2017	2018	2019	2020	2018	2019	2020		
	Environmental taxes (% of GDP)	% of GDP	2.1	2.1	2.0	2.0	2.0	1.9	2.4	2.4	2.2		
	Environmental taxes (% of total taxation)	% of taxation ⁽³⁾	6.0	6.0	5.7	5.4	5.7	5.4	6.0	5.9	5.6		
	Government expenditure on environmental protection	% of total exp.	2.65	1.88	2.06	2.10	2.03	1.91	1.66	1.70	1.61		
	Investment in environmental protection	% of GDP ⁽⁴⁾	1.13	0.64	0.71	0.76	-	-	0.42	0.38	0.41		
	Fossil fuel subsidies	EUR2020bn	1.03	1.13	1.40	1.10	1.41	-	56.87	55.70	-		
	Climate protection gap ⁽⁵⁾	score 1-4	1.9 out of 4 (slight increase from historical level of 1.8). This is a low/medium risk category (4 being a high risk).										
	Net GHG emissions	1990 = 100	65	65	66	65	62	60	79	76	69		
	GHG emissions intensity of the economy	kg/EUR10	0.68	0.68	0.64	0.62	0.57	0.59	0.32	0.31	0.30		
Energy	Energy intensity of the economy	kgoe/EUR10	0.24	0.24	0.23	0.23	0.22	0.22	0.12	0.11	0.11		
	Final energy consumption (FEC)	2015=100	100.0	102.6	105.4	104.7	104.4	101.2	103.5	102.9	94.6		
	FEC in residential building sector	2015=100	100.0	104.7	106.4	104.0	102.9	105.6	101.9	101.3	101.3		
	FEC in services building sector	2015=100	100.0	103.8	106.8	105.1	107.2	100.3	102.4	100.1	94.4		
Pollution	Smog-precursor emission intensity (to GDP) ⁽⁴⁾	tonne/EUR10 ⁽⁶⁾	1.69	1.47	1.36	1.25	1.14	-	0.99	0.93	-		
	Years of life lost caused due to air pollution by PM2.5	per 100,000 inh.	1001	957	1074	1186	892	-	863	762	-		
	Years of life lost due to air pollution by NO2	per 100,000 inh.	49	24	28	32	19	-	120	99	-		
	Nitrate in ground water	mg NO3/litre	18.2	18.7	18.3	18.0	17.7	-	21.7	20.7	-		
Biodiversity	Terrestrial protected areas	% of total	-	21.1	21.9	-	21.9	21.9	-	25.7	25.7		
	Marine protected areas	% of total	-	-	-	-	-	-	-	10.7	-		
	Organic farming	% of total utilised agricultural area	13.7	14.0	14.1	14.8	15.2	15.3	8.0	8.5	9.1		
			2000-2006	2006-2012	2012-2018	200-06	06-12	12-18					
Mobility	Net land take	per 10,000 km2	4.0	2.6	1.7	13.0	11.0	5.0					
			2015	2016	2017	2018	2019	2020	2018	2019	2020		
	GHG emissions intensity of transport (to GVA) ⁽⁷⁾	kg/EUR10	0.98	1.04	0.97	0.89	0.89	1.01	0.89	0.87	0.83		
	Share of zero emission vehicles ⁽⁸⁾	% in new registrations	0.1	0.1	0.1	0.3	0.3	1.6	1.0	1.9	5.4		
	Number of plug-in electric vehicles per charging point		11	9	10	10	12	12	8	8	12		
Digital	Share of electrified railways	%	34.0	34.0	34.2	34.2	34.2	-	55.6	56.0	-		
	Congestion (average number of hours spent in road congestion per year by a representative commuting driver)		23.4	23.0	23.4	22.8	23.3	-	28.9	28.8	-		
			Year	CZ	EU								
Digital	Share of smart meters in total metering points ⁽⁹⁾ - electricity	% of total	2018	0.0	35.8								
	Share of smart meters in total metering points ⁽⁹⁾ - gas	% of total	2018	0.0	13.1								
	ICT used for environmental sustainability ⁽¹⁰⁾	%	2021	55.8	65.9								

(1) The 2030 non-ETS GHG target is based on the Effort Sharing Regulation. The FF55 targets are based on the COM proposal to increase EU's climate ambition by 2030. Renewables and Energy Efficiency targets and national contributions under the Governance Regulation (Regulation (EU) 2018/1999). (2) Distance to target is the gap between Member States' 2030 target under the Effort Sharing Regulation and projected emissions, with existing measures (WEM) and with additional measures (WAM) respectively, as a percentage of 2005 base year emissions. (3) Percentage of total revenues from taxes and social contributions (excluding imputed social contributions). Revenues from the ETS are included in environmental tax revenues (in 2017 they amounted to 1.5% of total environmental tax revenues at the EU level). (4) Covers expenditure on gross fixed capital formation to be used for the production of environmental protection services (i.e. abatement and prevention of pollution) covering all sectors, i.e. government, industry and specialised providers. (5) The climate protection gap indicator is part of the European adaptation strategy (February 2021), and is defined as the share of non-insured economic losses caused by climate-related disasters. (6) Sulphur oxides (SO2 equivalent), Ammonia, Particulates < 10µm, Nitrogen oxides in total economy (divided by GDP). (7) Transportation and storage (NACE Section H). (8) Zero emission vehicles include battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). (9) European Commission Report (2019) 'Benchmarking smart metering deployment in the EU-28'. (10) European Commission (2021). Each year the DESI is re-calculated for all countries for previous years to reflect any possible change in the choice of indicators and corrections to the underlying data. Country scores and rankings may thus differ compared with previous publications.

Source: Eurostat, JRC, European Commission, EEA, EAFO.

ANNEX 6: EMPLOYMENT AND SOCIAL IMPACT OF THE GREEN TRANSITION

The green transition not only encompasses improvements to environmental sustainability, but also includes a significant social dimension. While measures here include the opportunity for sustainable growth and job creation, it must also be ensured that no one is left behind and all groups in society benefit from the transition. Czechia's green transition can benefit from a strong labour market and supportive policy framework, however, energy-intensive sectors are sizeable and lower-income groups are likely to be most affected.

Czechia's Recovery and Resilience Plan (RRP) outlines some measures to support a fair green transition. Investments in multimodal transport, cycle paths and pedestrian barrier-free routes will mitigate the impact of traffic on the environment, support public health and promote active mobility, especially in cities. Additional investments in refurbished social care facilities will help achieve the highest energy efficiency standards. Actions to increase the number of electric vehicles for greener delivery of social services are also envisaged. In synergy with the Recovery and Resilience Facility, the European Social Fund Plus (ESF+) will help unlock the potential for 'green jobs' in Czechia; and the Just Transition Fund (EUR 1.64 billion; current prices) will help to mitigate the social impact of the transition in three Czech regions (see Annex 3). Czechia's integrated national energy and climate plan (NECP) of 22 January 2020 partially addresses the impact on the population affected by the restructuring of coal regions. The document analyses the impacts on energy poverty, skills and, to some extent, income distribution, and outlines an approach to tackle energy poverty. However, specific measures tackling energy poverty and the impact assessment of the planned transition measures on households' income are still lacking.

The economy has slightly reduced its carbon footprint, while energy-intensive sectors remain sizeable. The greenhouse gas (GHG) emissions intensity of the Czech economy decreased slightly between 2015 and 2020 (in terms of gross value added), but is more than twice the EU average. The carbon footprint per worker is, at 18.18 tonnes of GHG emissions, one of the highest in the EU (the EU average is 13.61) (see Figure 1). Declining

activities such as coal and lignite extraction still take place⁽³²⁾. Czechia's energy-intensive industry, including activities involving metals, chemicals, non-metallic minerals, and automotive manufacturing⁽³³⁾, provides jobs for 6.76% of the total workforce, one of the highest percentages among EU Member States. In particular, Czechia's automotive manufacturing sector is the largest in the EU in terms of employment share. It is estimated that 22 000 jobs in energy and coal sectors may be at risk of disappearing⁽³⁴⁾. In this context, upskilling and reskilling are particularly important (see Annex 15)⁽³⁵⁾. The environmental goods and services sector provides jobs to 2.3% of the workforce, compared to an EU average of 2.2%. The steady increase in the job vacancy rate (5.1% in Q3-2021 versus 2.4% in the EU) highlights the need to closely monitor labour shortages, in particular in sectors linked to the transition to climate-neutrality such as construction (which has a 11.6% vacancy rate) (Eurofound, 2021).

As for the social dimension of the green transition, ensuring access to essential transport and energy services appears overall to be a moderate challenge in Czechia. A relatively low and stable share of the population in rural areas lives at risk of poverty (9.2% compared to the EU average of 18.7%)⁽³⁶⁾. The share of the population who are unable to keep their homes sufficiently warm is 2.2% in 2020, one of the lowest values in the EU and well below the EU average (8.2%). The lowest-income households are most affected (see Figure 2). The average carbon footprint of the top 10% of emitters is about 5.1 times higher than that of the bottom

⁽³²⁾ SWD(2021) 275 final.

⁽³³⁾ 2020 European Semester: Overview of Investment Guidance on the Just Transition Fund 2021-2027 per Member State (Annex D).

⁽³⁴⁾ <https://publications.jrc.ec.europa.eu/repository/handle/JRC112593>

⁽³⁵⁾ There is currently no common EU-wide definition of green jobs. The environmental goods and services sector (EGSS) accounts only report on an economic sector that generates environmental products, i.e. goods and services produced for environmental protection or resource management.

⁽³⁶⁾ As a proxy for potential transport challenges in the context of the green transition (see COM(2021) 568 final).

50%, which is broadly in line with the EU average of 5.3 times.

Tax systems are key to ensuring a fair transition towards climate neutrality⁽³⁷⁾.

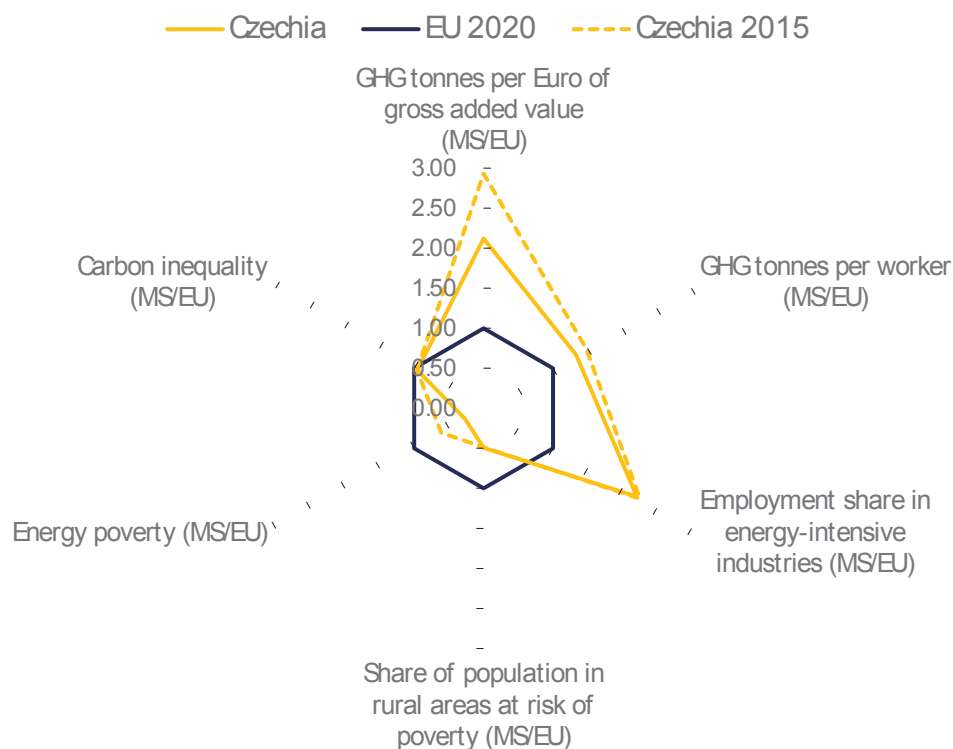
Czechia's revenues from total environmental taxes remained stable between 2015 (2.05% of GDP) and 2019 (2.04%) and slightly declined to 1.93% in 2020 (compared to an EU average of 2.24%). The labour tax wedge for low-income earners⁽³⁸⁾ increased from 37.0% to 39.4% in 2019. It stood at 35.1% in 2021, compared to an EU average of 31.9% (see Annex 17). Redistributive measures accompanying environmental taxation can support disposable income of households in the lowest segments of the income distribution and prevent inequality from growing⁽³⁹⁾.

⁽³⁷⁾ COM(2021) 801 final.

⁽³⁸⁾ Tax wedge for a single earner at 50% of the national average wage (Tax and benefits database, European Commission/OECD).

⁽³⁹⁾ SWD(2021) 641 final PART 3/3, on distributional effects of energy taxation revision, based on the European Commission Joint Research Centre GEM-E3 and Euromod models.

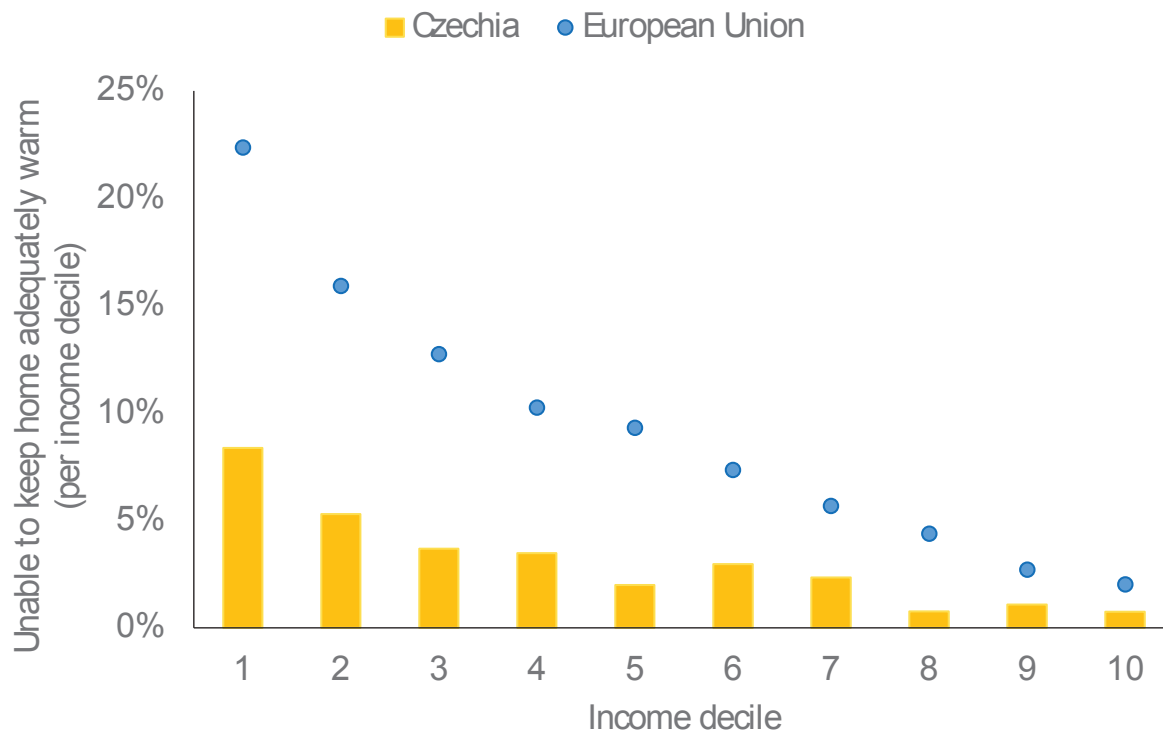
Graph A6.1: Fair green transition challenges



Numbers are the normalised indicator performance, signifying factors relative to the EU27 average. Carbon inequality average emissions per capita 10% vs bottom 50% (2019)

Source: Eurostat, World inequality database

Graph A6.2: Energy poverty by income decile



HH050: Ability to keep home adequately warm

HY020: Total disposable household income

Source: Eurostat EU-SILC survey (2020)

The efficient use of resources is key to ensuring competitiveness and open strategic autonomy, while minimising the environmental impact. The green transition presents a major opportunity for European industry by creating markets for clean technologies and products. It will have an impact across the entire value chains in sectors such as energy and transport, construction and renovation, food and electronics, helping create sustainable, local and well-paid jobs across Europe.

While circular secondary material usage has shown a steady increase over the past decade, Czechia still needs ambitious measures covering the whole product life cycle to double the EU circular material use rate by 2030 at EU level. The circular material use rate was 13.4% in 2020, which is above the EU average of 12.8%. The Czech RRP includes measures to support the transition to a circular economy (prevention of waste, increase of recycling infrastructure and reduction of secondary raw materials waste, as well as increasing the proportion of recycled materials in products and ensuring raw material safety in Czechia). There are also investments planned to support resource management solutions in enterprises. Component 2.7 'circular economy, recycling and industrial water' in the RRP includes investments to support resource management solutions in enterprises, in particular investments in innovative technologies to enable new or increased use of secondary raw materials as a substitute for primary resources, and to reduce the material intensity of production and substitute primary feedstock by secondary ones, and the optimisation of material eco-design of products to facilitate recycling and re-use.

Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help to minimise negative impacts on the environment and reduce dependency on volatile raw material markets. At 1.16 purchasing power standards (PPS) generated per kg of material consumed in 2020, resource productivity in Czechia is still below the EU average of 2.23 PPS per kg although there has been a steady increase since 2014. The 'material intensity' variable

shows how many additional kg of material consumption would be associated with an increase in GDP, at the current resource productivity rates. Czechia performs slightly better than the EU average and has been improving since 2015.

Czechia's economic growth is not yet decoupled from the generation of waste. Czechia's municipal waste recycling rate was 33.8% in 2020, well below the EU average of 48%, and far below the 2020 and 2025 EU targets of 50% and 55% respectively. This low level illustrates the below average level of waste management in Czechia. There are clear challenges in reaching the 2035 EU target for reducing landfilling to a maximum of 10% of municipal waste. The 90% collection target for plastic bottles by 2029 may also be a challenge. Czechia has not introduced a deposit-refund system for single-use beverage packaging.

Further measures can help Czechia improve its position on environmental technology, notably in relation to sustainable product design, resource efficient production processes, digital solutions, industrial symbiosis, remanufacturing in key value chains, alternatives to the unsustainable extraction of raw materials, and new circular business models. There is also scope to shift reusable and recyclable waste away from landfill, including through economic instruments, adding separate collection facilities to ensure that the post-2020 recycling targets - in particular on plastics - are met. A successful transition to a circular economy requires social and technological innovation as its full potential can only be reached if implemented across all value chains. Eco-innovation is an important enabling factor for the circular economy. The country ranked 13th in the list of EU countries with a total score of 111 in the 2021 Eco-Innovation Scoreboard. With regard to the components of the 2021 Eco-innovation index, Czechia performs below the EU average for 'eco-innovation inputs', 'eco-innovation outputs' and 'resource-efficiency outcomes'. Nevertheless, for 'socio-economic outcomes', Czechia performs slightly above the EU average, and outperforms for 'eco-innovation activities', as the country with the most ISO 14001 registered organisations.

Table A7.1: Selected resource efficiency indicators

Key indicators - Czech Republic

SUB-POLICY/AREA	2015	2016	2017	2018	2019	2020	EU27	Latest year EU 27
Circularity								
Resource Productivity (Purchasing power standard (PPS) per kilogram)	1.5	1.6	1.7	1.8	1.8	1.9	2.2	2020
Material Intensity (kg/EUR)	0.7	0.6	0.6	0.6	0.5	0.5	0.4	2020
Circular Material Use Rate (%)	6.9	7.5	9.1	10.5	11.3	13.4	12.8	2020
Material footprint (Tones/capita)	18	17	18	18	18	-	15	2019
Waste								
Waste generation (kg/capita, total waste)	-	2402	-	3560	-	-	5234	2018
Landfilling (% of total waste treated)	-	16.6	-	-	-	-	38.5	2018
Recycling rate (% of municipal waste)	29.7	33.6	32.0	32.2	33.3	33.8	47.8	2020
Hazardous waste (% of municipal waste)	-	4.3	-	4.5	-	-	4.3	2018
Competitiveness								
Gross value added in environmental goods and services sector (% of GDP)	2.5	2.4	2.3	2.2	2.3	-	2.3	2019
Private investment in circular economy (% of GDP)	-	-	-	-	-	-	0.1	2018

Source: Eurostat

Graph - Economic importance and expansion of the circular economy

	2015	2016	2017	2018	2019	2020
Persons employed in the circular economy, CZ (% of total employment)	-	-	-	-	-	-
Value added at factor cost, CZ (% of GDP)	-	-	-	-	-	-
Persons employed in the circular economy, EU27 (% of total employment)	1.72%	1.73%	1.75%	1.71%	-	-
Value added at factor cost, EU27 (% of GDP)	0.94%	0.94%	0.96%	0.97%	-	-

Source: Eurostat

The Digital Economy and Society Index (DESI) monitors EU Member States' digital progress. The areas of human capital, digital connectivity, the integration of digital technologies by businesses and digital public services reflect the Digital Decade's four cardinal points⁽⁴⁰⁾. This Annex describes Czechia's DESI performance.

The share of Czech RRP dedicated to digital priorities is 22%⁽⁴¹⁾. The main areas for investment are the digitalisation of public services (e-government, e-health), boosting digital skills and supporting the digital transformation of businesses.

Czechia scores well in basic digital skills but the economy lacks ICT specialists, which limits digital transformation. According to Eurostat, 76% of Czech enterprises reported difficulties in finding ICT specialists which is the highest percentage in the EU (EU average: 55%)⁽⁴²⁾. Despite the relatively high proportion of ICT graduates (Czechia: 5%; EU average: 3.9%) the economy has the capacity to absorb an additional 14000 ICT specialists⁽⁴³⁾. The proportion of female ICT specialists is the second lowest in the EU after Hungary.

Czechia has one of the lowest coverages of very high capacity networks in the EU, and the take-up of gigabit broadband is practically non-existent. The overall fixed broadband take-up is above the EU average (Czechia: 84% of households; EU average: 78%) and mobile broadband take-up is slightly below EU average (Czechia: 85% of individuals; EU average: 87%). Czech telecom providers are starting to roll out 5G internet but the networks are so far only available in a few dozen cities.

Czech SMEs are almost in line with the EU average on undergoing digital

transformation and the country remains one of the EU leaders in e-commerce. Czech enterprises are above the EU average in their use of cloud solutions. However, Czechia is below the EU average in using AI and big data. According to the Confederation of Industry⁽⁴⁴⁾, large enterprises are adopting digital technologies faster than SMEs, and are therefore gaining a competitive advantage.

Czechia is rolling-out new digital public services and the monitored indicators are approaching the EU average. The recent launch of bank identity and the adoption of the law introducing the 'right for digital service' will stimulate interest in e-government services. The country is following an ambitious strategy and is planning to allow citizens carry ID cards or driving licences in a mobile app instead of physical cards.

⁽⁴⁰⁾ 2030 Digital Compass: the European Way for the Digital Decade Communication, COM (2021) 118 final.

⁽⁴¹⁾ The share of financial allocations contributing to digital objectives has been calculated using Annex VII of the RRF Regulation.

⁽⁴²⁾ Source: Eurostat – European Union Survey on ICT Usage and eCommerce in Enterprises.

⁽⁴³⁾ <https://www.e15.cz/byznys/technologie-a-media/cesku-chybi-tisice-it-odborniku-seniorni-vyvojar-si-pritom-muze-vydelat-az-200-tisic-mesicne-1383866>

⁽⁴⁴⁾ Confederation of Industry: <https://www.spcr.cz/pro-media/tiskove-zpravy/14125-firmy-ktere-zavedly-technologie-prumysl-4-o-jsou-produktivnejsi>

Table A8.1: Key Digital Economy and Society Index Indicators

	Czechia			EU	EU top-performance
	DESI 2020	DESI 2021	DESI 2022	DESI 2022	DESI 2022
Human capital					
At least basic digital skills	NA	NA	60%	54%	79%
% individuals			2021	2021	2021
ICT specialists	4.0%	4.2%	4.6%	4.5%	8.0%
% individuals in employment aged 15-74	2019	2020	2021	2021	2021
Female ICT specialists	10%	10%	10%	19%	28%
% ICT specialists	2019	2020	2021	2021	2021
Connectivity					
Fixed Very High Capacity Network (VHCN) coverage	29%	33%	52%	70%	100%
% households	2019	2020	2021	2021	2021
5G coverage (*)	NA	0%	49%	66%	99.7%
% populated areas		2020	2021	2021	2021
Integration of digital technology					
SMEs with at least a basic level of digital intensity	NA	NA	53%	55%	86%
% SMEs			2021	2021	2021
Big data	8%	9%	9%	14%	31%
% enterprises	2018	2020	2020	2020	2020
Cloud	NA	NA	40%	34%	69%
% enterprises			2021	2021	2021
Artificial Intelligence	NA	NA	4%	8%	24%
% enterprises			2021	2021	2021
Digital public services					
Digital public services for citizens	NA	NA	75	75	100
Score (0 to 100)			2021	2021	2021
Digital public services for businesses	NA	NA	81	82	100
Score (0 to 100)			2021	2021	2021

(*) The 5G coverage indicator does not measure users' experience, which may be affected by a variety of factors such as the type of device used, environmental conditions, number of concurrent users and network capacity. 5G coverage refers to the percentage of populated areas as reported by operators and national regulatory authorities.

Source: Digital Economy and Society Index

The present Annex provides a general overview of the performance of Czechia's research and innovation system. Czechia is a moderate innovator according to the 2021 edition of the European Innovation Scoreboard⁽⁴⁵⁾. Total R&D intensity reached 1.99% in 2020 and although it is increasing (compared to 1.33% in 2010), it remains below the EU average of 2.32%.

Public and private R&D investments are close to the EU average, but scientific and technological performance remains weak and stagnant over time. Scientific excellence, as measured by the proportion of scientific publications among the top 10% most cited publications, remains low at around half of the EU average (in 2018, 5% against an EU average of 9.9%). In addition, Czechia also lags in technological production with a low number of patent applications, well below the EU average. A decreasing number of graduates in science and engineering (14.5 per thousand in 2010 in comparison to 10.9 in 2019 with an EU average at 16.3) and skills shortages could endanger future R&I performance. The Recovery and Resilience Plan includes investments to address some of these challenges, such as large-scale projects to improve cooperation in excellent research and sponsoring participation in international scientific projects. Nevertheless, many of the reforms required to increase the efficiency of R&I investments are not sufficiently covered.

Weak science-business links continue to hamper knowledge and technology transfer. Poor incentives for stronger collaboration between research organisations and individual researchers on creating and working in academic spin-offs and regulatory barriers to creating such spin-offs continue to hinder academic-business cooperation⁽⁴⁶⁾. Public-private scientific co-publications remain below the EU average (6.7% in 2020 compared to an EU average of 9.05%) and Czechia continues to score below the EU average for public R&D financed by businesses. The RRP does not propose

simplifying of the overall regulatory framework for public private cooperation and the reform processes thus need to be followed along the national R&I strategies⁽⁴⁷⁾.

⁽⁴⁵⁾ 2021 European Innovation Scoreboard, Country profile: Czechia;
<https://ec.europa.eu/docsroom/documents/45910>

⁽⁴⁶⁾ OECD Report on innovation Diffusion in the Czech Republic, 2020 [Innovation diffusion in the Czech Republic](https://www.oecd.org/publications/innovation-diffusion-in-the-czech-republic/) ([oecd.org](https://www.oecd.org/publications/innovation-diffusion-in-the-czech-republic/))

⁽⁴⁷⁾ Innovation Strategy of the Czech Republic 2019-2030 and the National Policy of Research, Development and Innovation of the Czech Republic 2021+

Table A9.1: Key research, development and innovation indicators

Czechia	2010	2015	2018	2019	2020	Compound annual growth 2010-20	EU average
Key indicators							
R&D Intensity (GERD as % of GDP)	1.33	1.92	1.9	1.93	1.99	4.1	2.32
Public expenditure on R&D as % of GDP	0.55	0.87	0.72	0.73	0.77	3.4	0.78
Business enterprise expenditure on R&D (BERD) as % of GDP	0.77	1.04	1.18	1.19	1.21	4.7	1.53
Quality of the R&I system							
Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country	4.7	4.5	5	:	:	0.8	9.9
PCT patent applications per billion GDP (in PPS)	0.7	1	1	:	:	-0,1	3.5
Academia-business cooperation							
Public-private scientific co-publications as % of total publications	5.5	5.9	6.8	6.6	6.7	2.1	9.05
Public expenditure on R&D financed by business enterprise (national) as of % GDP	0.016	0.03	0.031	0.027	0.025	4.2	0.054
Human capital and skills availability							
New graduates in science & engineering per thousand pop. aged 25-34	14.5	13.1	11.5	10.9	:	-2.5	16.3
Public support for business enterprise expenditure on R&D (BERD)							
Total public sector support for BERD as % of GDP	0.173	0,180:	0.16	0.16	:	-0.9	0.196
R&D tax incentives: foregone revenues as % of GDP	0.033	0.055	0.048	0.048	:	4.2	0.1
Green innovation							
Share of environment-related patents in total patent applications filed under PCT (%)	15,1	6,3	12,4	:	:	-2,5	12,8
Finance for innovation and Economic renewal							
Venture Capital (market statistics) as % of GDP	0.02	0.003	0.004	0.007	0.008	-8.3	0.054
Employment in fast-growing enterprises in 50% most innovative sectors	6.7	6.5	6.1	6.1	:	-1	5.5

Source: DG Research and Innovation - Common R&I Strategy and Foresight Service - Chief Economist Unit. Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical database), Invest Europe

Productivity growth is a critical driver of economic prosperity, well-being and convergence over the long run. A major source of productivity for the EU economy is a well-functioning single market, where fair and effective competition and a business friendly environment are ensured, in which small and medium enterprises (SMEs) can operate and innovate without difficulty. Businesses and industry rely heavily on robust supply chains and are facing bottlenecks that bear a negative impact on firms' productivity levels, employment, turnover and entry/exit rates. This may impact the Member States' capacity to deliver on Europe's green and digital transformation.

Overall competitiveness and labour productivity have been subdued in Czechia. Relatively low unemployment levels and bottlenecks in the labour market have pushed wages upwards in the recent years. In 2021, 26% of firms reported problems finding adequate workforce to employ compared to an EU average of 14%. Although the demand for labour decreased in the pandemic, structural issues remain, including those related to labour and skills shortages.

Further improvement is needed in the business environment, especially with regard to late payments, access to finance and administrative burden. Lengthy and burdensome administrative procedures remain barriers to investment to support local entrepreneurship and SMEs. Late payments constitute a key barrier to SMEs' resilience and growth (62.3% of SMEs experienced payment delays in the last 6 months compared with an EU average of 45%) and these were the second most important barrier after administrative burden for SMEs and start-ups according to the 2020 Eurobarometer⁽⁴⁸⁾. The survey on the access to finance of enterprises 2021⁽⁴⁹⁾ found that Czechia has a high success rate for application for bank loans (80%), but the percentage of SMEs whose bank loan applications were refused or rejected in 2021 was 16.3%, compared to an EU average of 12.4%. There has also been a net deterioration in changes to the availability of credit lines, bank overdrafts or credit cards

overdrafts and in the level of interest rates in 2021. Equity financing remained underdeveloped, and venture capital investment represented only around 0.01% of GDP⁽⁵⁰⁾, one of the lowest rates in the EU. However, Czechia has included some measures in its Recovery and Resilience Plan to improve this situation, such as extending the National Development Bank of the Czech Republic (NDB)'s product line to include a new quasi-equity instrument and strengthening NDB's implementation capacity. The plan also includes measures to ease the administrative burden on businesses such as expanding digital public services, lowering high regulatory barriers for entrepreneurs and improving access to quality e-government services.

Although the economy is well-integrated into the single market, barriers remain. Despite recent reforms, several professions (architect, civil engineer, lawyer and real estate agent) face higher regulatory restrictions than the EU average. Czechia announced the regulation of tourist guides and real estate agents professions. The RRP does not address these barriers.

There are still public procurement issues to resolve from recent years. Although SME participation in public procurement procedures is above the EU average (in numbers of both contractors and bids), Czechia scores below the EU average on some important indicators such as the proportion of contracts awarded to a single bidder.

As in other countries, global supply chain disruptions are denting growth. Sectors such as the automotive industry had to reduce production due to disruptions in supplies such as semiconductors. In 2021, 21% of firms reported disruptions to their operations due to shortages in materials or equipment (compared with an EU average of 26%).

⁽⁴⁸⁾ [Flash Eurobarometer 486](#)

⁽⁴⁹⁾ <https://ec.europa.eu/growth/system/files/2021-11/Analytical%20report%202021.pdf>

⁽⁵⁰⁾ EIF Access to Finance Index – Equity, 2020

Table A10.1: Key Single Market and Industry Indicators

SUB-POLICY AREA	INDICATOR NAME	DESCRIPTION	2021	2020	2019	2018	2017	Growth rates	EU27 average*
HEADLINE INDICATORS									
Economic structure	Value added by source (domestic)	VA that depends on domestic intermediate inputs, % [source: CEED (TIVA), 2018]				61.58			62.6%
	Value added by source (EU)	VA imported from the rest of the EU, % [source: CEED (TIVA), 2018]				22.28			19.7%
	Value added by source (extra-EU)	% VA imported from the rest of the world, % [source: CEED (TIVA), 2018]				16.1			17.6%
Cost competitiveness	Producer energy price (industry)	Index (2015=100) [source: Eurostat, sts_inppd_a]	114.5	104.4	106.2	100.9	95.1	20.4%	127.3
RESILIENCE									
Shortages/supply chain disruptions	Material Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECRN CBS]	21	10	13	11	10	110%	26%
	Labour Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECRN CBS]	26	21	34	35	33	-21%	14%
	Sectoral producer prices	Average (across sectors), 2021 compared to 2020 and 2019, index [source: Eurostat]						6.1%	5.4%
Strategic dependencies	Concentration in selected raw materials	Import concentration a basket of critical raw materials, index [source: COMEXT]	0.19	0.17	0.19	0.19	0.21	-10%	17%
	Installed renewables electricity capacity	Share of renewable electricity to total capacity, % [source: Eurostat, rrg_inf_epc]		23.2	22.4	22	21.9	6%	47.8%
Investment dynamics	Net Private investments	Change in private capital stock, net of depreciation, % GDP [source: Ameco]		3.9	6.6	6.2	5.5	-29%	2.6%
	Net Public investments	Change in public capital stock, net of depreciation, % GDP [source: Ameco]		0.8	0.6	0.3	-0.6	-233%	0.4%
SINGLE MARKET									
Single Market integration	Intra-EU trade	Ratio of Intra-EU trade to Extra-EU trade, index [source: Ameco]	3.53	3.26	3.32	3.37	3.38	4%	1.59
Professional services restrictiveness	Regulatory restrictiveness indicator	Restrictiveness of access to and exercise of regulated professions (professions with above median restrictiveness, out of the 7 professions analysed in SMD (2021)185 [source: SMD (2021)185; SMD (2016)436 final])	4				4	0%	3.37
Professional qualifications recognition	Recognition decisions w/o compensation	Professionals qualified in another EU MS applying to host MS, % over total decisions taken by host MS [source: Regulated professions database]	61.1						45%
Compliance - cooperation EC and MS	Transposition - overall	5 sub-indicators, sum of scores [source: Single Market Scoreboard]		On average	Below average	On average	Below average		
	Infringements - overall	4 sub-indicators, sum of scores [source: Single Market Scoreboard]		Below average	On average	Below average	Below average		

(Continued on the next page)

Table (continued)

Investment protection	Confidence in investment protection	Companies confident that their investment is protected by the law and courts of MS if something goes wrong, % of all firms surveyed [source: Flash Eurobarometer 504]	62						56%
BUSINESS ENVIRONMENT - SMEs									
Business demography	Bankruptcies	Index (2015=100) [source: Eurostat, sts_rb_a]	na.	na.	na.	na.	na.	na.	70.1
	Business registrations	Index (2015=100) [source: Eurostat, sts_rb_a]	na.	na.	na.	na.	na.	na.	105.6
Access to finance	Late payments	Share of SMEs experiencing late payments in past 6 months, % [source: SAFE]	62.3	55.8	74.2	na.	na.	-16%	45%
	BF Access to finance index - Loan	Composite: SME external financing over last 6 months, index from 0 to 1 (the higher the better) [source: BF SME Access to Finance Index]		0.43	0.54	0.71	0.69	-37.4%	0.56
	BF Access to finance index - Equity	Composite: VOGDP, IFOGDP, SMEs using equity, index from 0 to 1 (the higher the better) [source: BF SME Access to Finance Index]		0.05	0.06	0.12	0.05	0%	0.18
	% of rejected or refused loans	SMEs whose bank loans' applications were refused or rejected, % [source: SAFE]	16.3	24.8	0	6.4	2.1	662%	12.4%
Public procurement	SME contractors	Contractors which are SMEs, % of total [source: Single Market Scoreboard]		68	65	69	66	3%	63%
	SME bids	Bids from SMEs, % of total [source: Single Market Scoreboard]		96	96	96	95	1.1%	70.8%

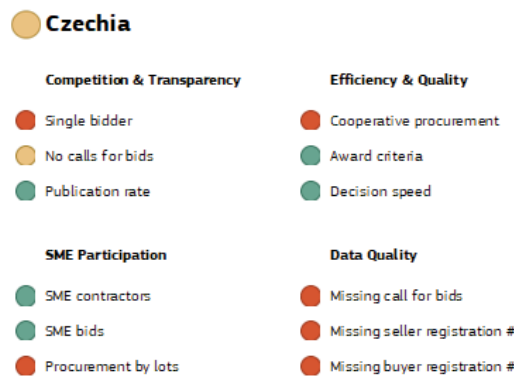
(*) latest available

Source: See above in the table the respective source for each indicator in the column "description".

ANNEX 11: PUBLIC ADMINISTRATION

Good administrative capacity enables economic prosperity, social progress and fairness. Public administrations at all government levels deliver crisis response, ensure the provision of public services and contribute to building resilience for the sustainable development of the EU economy.

Graph A11.1: Performance on the single market public procurement indicator



(1) The competition and transparency indicators are triple-weighted, whereas the efficiency and quality indicators have unitary weights. All others receive a 1/3 weighting in the SMS composite indicator.

Source: Single market scoreboard 2020 data.

Overall, the effectiveness of public administration in Czechia is ranked below the EU27 average ⁽⁵¹⁾. Administrative capacity and the professionalism of civil servants remains a challenge. Czechia has a relatively low share of adult learning of public sector workers (10.2% in 2021 compared to the EU27 average of 18.6%, likely aggravated by the COVID-19 pandemic restrictions). Czechia also remains below the EU average in its share of public administration employees with tertiary education (45.3% compared to the EU average of 55.3%). Czechia also faces challenges in attracting young civil servants. It ranks in the bottom half of the EU on share of government employees aged under 39, leading to potential concerns about the stability of the civil service ⁽⁵²⁾.

Czechia performs below the EU average on some fiscal framework indicators. These include the Commission's medium-term

⁽⁵¹⁾ Worldwide Governance Indicators, 2020.

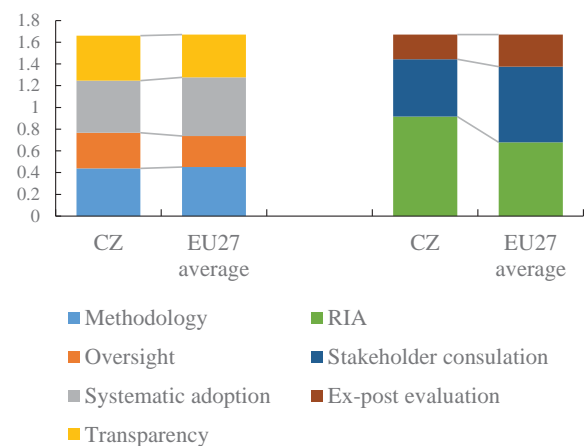
⁽⁵²⁾ European Commission, Directorate-General for Structural Reform Support, Public administration and governance: "European Public Administration Country Knowledge, Country brief 2021, Czechia", Publications Office, 2022

budgetary framework and strength of fiscal rules indices, which have remained stable over the past four years. Public procurement issues also remain due to the relatively high proportion of contracts awarded where there was only a single bidder and various measures of quality of information in procurement (Graph A11.1).

Performance on e-government services is mixed. The proportion of e-government users is relatively high (76% compared with an EU average of 70.8%), whereas the e-government score of 62.6 is below the EU average (70.9). Czechia's Recovery and Resilience Plan contains significant measures to improve digital services for citizens and business, and to develop the digital public administration systems.

Evidence-based policy making in Czechia ranks around the EU average (Graph A11.2), with public consultation and *ex-post* evaluation of legislation showing the largest potential for improvement. Czechia's Recovery and Resilience Plan also contains investments to improve the efficiency of the administration and promote the use of evidence-based decision-making.

Graph A11.2: Performance on evidence-based policy making indicators



RIA : Regulatory Impact Assessment

Source: OECD (iREG indicators)

Czechia remains below the EU average on open data provision. It scores 74.3 (EU average of 81.1). Low provision of open data reduces the potential of information to hold institutions accountable to citizens.

The justice system performs efficiently. The main challenge is the length of administrative

cases (317 days in the courts of first instance in 2020), though this has improved in recent years. Digitalisation remains a challenge, as digital tools are scarcely used in courts. No systemic deficiencies have been reported in judicial independence⁽⁵³⁾. The Recovery and Resilience Plan contains reforms to ensure the protection of whistle-blowers, strengthen transparency in the judiciary, set rules for lobbying and collect data on corruption.

Table A11.1: Public administration indicators

CZ	Indicator (1)	2017	2018	2019	2020	2021	EU27
E-government							
1	Share of individuals who used internet within the last year to interact with public authorities (2)	53.0	61.0	61.0	64.0	76.0	70.8
2	2021 e-government benchmark's overall score (3)	na	na	na	na	62.6	70.9
Open government and independent fiscal institutions							
3	2021 open data maturity index	na	na	na	na	74.3	81.1
4	Scope Index of Fiscal Institutions	NA	51.3	51.3	51.3	na	56.8
Educational attainment level, adult learning, gender parity and ageing							
5	Share of public administration employees with tertiary education, levels 5-8 (4)	42.8	43.7	45.1	43.3	45.3	55.3
6	Participation rate of public administration employees in adult learning (4)	17.9	15.7	14.1	9.5	10.2	18.6
7	Gender parity in senior civil service positions (5)	38.2	36.8	40.6	36.6	43.4	21.8
8	Share of public sector workers between 55 and 74 years (4)	20.7	20.9	20.7	20.3	21.0	21.3
Public Financial Management							
9	Medium term budgetary framework index	0.43	0.57	0.57	0.57	na	0.72
10	Strength of fiscal rules index	1.1	1.1	1.1	1.1	na	1.5
11	Public procurement composite indicator	-5.7	-2.7	-4.7	0.3	na	-0.7
Evidence-based policy making							
12	Index of regulatory policy and governance practices in the areas of stakeholder engagement, Regulatory Impact Assessment (RIA) and ex post evaluation of legislation	1.63	na	na	1.67	na	1.7

(1) High values stand for good performance barring indicators # 7 and 8.

(2) Break in the series in 2018 and 2021.

(3) Measures the user centricity (including for cross-border services) and transparency of digital public services as well as the existence of key enablers for the provision of those services.

(4) Break in the series in 2021.

(5) Defined as the absolute value of the difference between the share of men and women in senior civil service positions
Source: ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Fiscal Governance Database (# 4, 9, 10); Labour Force Survey, Eurostat (# 5, 6, 8), European Institute for Gender Equality (# 7), Single Market Scoreboard public procurement composite indicator (# 11); OECD Indicators of Regulatory Policy and Governance (# 12).

⁽⁵³⁾ For more detailed analysis of the performance of the justice system in Czechia, see the 2022 EU Justice Scoreboard (forthcoming) and the country chapter for Czechia of the Commission's 2022 Rule of Law Report (forthcoming).

ANNEX 12: EMPLOYMENT, SKILLS AND SOCIAL POLICY CHALLENGES IN LIGHT OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

The European Pillar of Social Rights provides the compass for upward convergence towards better working and living conditions in the European Union. The implementation of its 20 principles on equal opportunities and access to the labour market, fair working conditions, social protection and inclusion, supported by the 2030 EU headline targets on employment, skills and poverty reduction, will strengthen the EU's drive towards a digital, green and fair transition. This Annex provides an overview of Czechia's progress in achieving the goals under the European Pillar of Social Rights.

Czechia's labour market performance remained strong throughout the COVID-19 crisis, though employment of young people, women with children and vulnerable groups remains a challenge. The overall unemployment and youth unemployment rates (2.8% and 8.2% in 2021 respectively) are among the lowest in the EU. The proportion of young people neither in employment, nor in education and training stood at 10.9% in 2021. The percentage of women NEET aged 15-29 who are not in employment, education or training is above the EU average (17.3% in Q4-2021 versus 14.6% in the EU) and significantly higher than for men (4.8%). Young Roma also face significantly higher risks of being NEET (47% in 2021). Both the gender employment and pay gaps (at 15.4 pps in 2021 and 16.4 pps in 2020) are well above the EU average (10.8 pps and 13 pps, respectively). Such gaps remain in part driven by the still limited provision of early childhood education and care. The gender employment gap is partly driven by the relatively high employment rate of men. The European Social Fund (ESF) has provided EUR 313 million to 1 108 facilities, creating 14 652 additional places for children. Even so, only 4.8% of children under the age of 3 were in formal childcare in 2020, compared to the much higher EU average of 32.3%. The employment impact of parenthood therefore remains one of the highest in the EU, which contributes to high inactivity among women.

Table A12.1: Social scoreboard for Czechia

Social Scoreboard for CZECH REPUBLIC		
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2021)	6.4
	Individuals' level of digital skills (% of population 16-74) (2021)	60.0
	Youth NEET (% of total population aged 15-29) (2021)	10.9
	Gender employment gap (percentage points) (2021)	15.4
	Income quintile ratio (S80/S20) (2020)	3.3
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2021)	80.0
	Unemployment rate (% population aged 15-74) (2021)	2.8
	Long term unemployment (% population aged 15-74) (2021)	0.8
	GDHI per capita growth (2008=100) (2020)	124.1
	At risk of poverty or social exclusion (in %) (2020)	11.5
Social protection and inclusion	At risk of poverty or social exclusion for children (in %) (2020)	12.9
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP) (2020)	40.6
	Disability employment gap (ratio) (2020)	25.6
	Housing cost overburden (% of population) (2020)	6.5
	Children aged less than 3 years in formal childcare (% of under 3-years-olds) (2020)	4.8
	Self-reported unmet need for medical care (% of population 16+) (2020)	0.4
<div> <div>Critical situation</div> <div>To watch</div> <div>Weak but improving</div> <div>Good but to monitor</div> <div>On average</div> <div>Better than average</div> <div>Best performers</div> </div>		

Update of 29 April 2022. Member States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 2022. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

Source: European Commission

High rates of early school leaving for some groups, coupled with relatively low levels of adult participation in learning, pose challenges, including to achieving a fair green and digital transition. The early school leaving rate (6.4% in 2021) is below the EU average (9.7%). It is nonetheless around seven times higher for Roma pupils (57% in 2016). There are also strong regional disparities in early school leaving rates, and educational outcomes remain linked to the students' socioeconomic background (see Annex 13). Adult participation in learning (25-64) has slightly decreased in recent years (from 8.5% in 2018 to 5.5% in 2020), and it remains well below the EU average (9.2% in 2020).

Individuals' high overall digital skills could still benefit from further continuous learning support. European Social Fund Plus (ESF+) support will tackle labour market barriers for vulnerable groups and create more reskilling and upskilling opportunities for long-term unemployed, thereby contributing to reaching the 2030 EU headline targets on skills and employment.

The proportion of people at risk of poverty or social exclusion is among the lowest in the EU, although it remains high for specific groups. While severe material and social deprivation of children remains low (3.1% versus EU average of 7% in 2020), children in low-income households in socially disadvantaged locations and Roma children remain strongly affected by the risk of poverty and social exclusion⁽⁵⁴⁾. The number of people at risk of foreclosure is relatively high (712,000 in 2021), while the size of the social housing stock is low (less than 2% of the total dwelling stock). Limited expenditure to increase the accessibility of social housing (0.18% of GDP in 2019 versus an OECD average of 0.25%) constrains Czechia's capacity to meet the demand by low-income and vulnerable households (OECD, 2021). The ESF+ will provide support for social inclusion, including via social housing. Some workers in non-standard forms of employment lack formal access to elements of the social protection, such as sickness and old-age benefits. Czechia has one of the highest proportions of end-of-life care taking place in hospitals (63% in 2019 versus 50% in the OECD), which indicated a need to modernise the long-term care system.

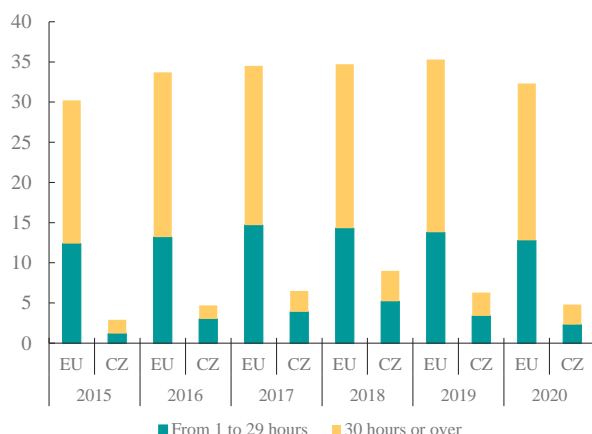
⁽⁵⁴⁾ On average, 77% of Roma adults and 85% of Roma children in Czechia are at the risk of poverty (FRA, RS2021).

ANNEX 13: EDUCATION AND SKILLS

This Annex outlines the main challenges for Czechia's education and training system in light of the EU-level targets of the European Education Area strategic framework and other contextual indicators, based on the analysis from the 2021 Education and Training Monitor. Czechia's education and training system struggles with equity challenges that could worsen due to the pandemic. Czechia lags significantly behind the EU average and the EU-level targets in terms of participation in early childhood education and tertiary education attainment.

Participation in early childhood education and care is low. While participation in early childhood education of children aged 3 and older has increased slightly, the EU-level target is not yet within reach. Children at risk of poverty and social exclusion are less likely to attend childcare, and Roma children are even less likely to participate⁽⁵⁵⁾. Enrolment in early childhood care for children under the age of 3 was the lowest among EU countries in 2020 (see Annex 12). The recent amendment to the Child Group Act combined with contributions from Structural Funds and the EU's Recovery and Resilience Facility will provide funding to expand childcare capacity.

Graph A13.0: Participation in formal childcare



Source: EU-SILC Survey, [ilc_caindformal](#)

Czechia's education system struggles with equity challenges. While the rate of early leavers from education and training is relatively low on average and within the EU-level target, pandemic-induced school closures may have a

negative impact in the future. Furthermore, there are significant regional disparities, with disadvantaged regions recording more than double the national rate of early school leavers. The early school leaving rate of Roma students was estimated at 57% in 2016, posing challenges for labour market and social inclusion. Differences in the quality of education between disadvantaged and advantaged schools, as measured by the PISA, remain significant, and educational outcomes remain closely linked to students' socioeconomic background. Czechia introduced reforms to funding of primary and secondary education and the Education Policy Strategy 2030+ in 2020.

Teacher shortages and the limited attractiveness of the teaching profession remain a challenge. Despite significant increases in Czech teachers' salaries, teacher shortages persist, particularly in disadvantaged regions. The proportion of teachers who are aged 50 or over increased between 2015 and 2021 and remains above the EU average. Czech teachers report comparatively lower rates of classroom practice acquired during their studies. Reform to initial teacher education has been launched. Attracting highly qualified teachers and pedagogical support staff to disadvantaged schools remains a challenge.

The EU-level target for tertiary education attainment remains distant. The rate of tertiary education attainment for Czech women is significantly higher than that for Czech men. High drop-out rates in higher education are a challenge⁽⁵⁶⁾, as are decreasing numbers of graduates in science and engineering (see Annex 8). The Recovery and Resilience

⁽⁵⁶⁾ From the Czech strategic plan of the Ministry for Higher Education for the period from 2021 on doctoral degree programmes: "Only about 7% of students complete their studies within the regular time limit and the overall success rate is around 40% – this means that there are more unsuccessful students than successful ones." "In addition, the issue of professional orientation is also related to the problem of academic failure – the failure rate is currently untenable, especially in bachelor's degree programmes. Most students expect professional relevance from their studies, and if they feel that their expectations are not being met, they often lose motivation and quit their studies." [strategic plan 2021 .pdf \(msmt.cz\)](#), also [Studijní neúspěšnost na vysokých školách: Teoretická východiska, empirické poznatky a doporučení - Aleš Vlk | Databáze knih \(databazeknih.cz\)](#)

⁽⁵⁵⁾ Only 51% of Roma children aged between 3 and the start of compulsory primary education age attend early childhood education and care (FRA, RS2021), compared to 79.4% in general population (Eurostat, 2019).

Facility will support the introduction of 35 new accredited programmes, including 20 with a professional profile, in order to increase the labour market relevance of studies and to counteract shortages of highly skilled

Table A13.1: **EU-level targets and other contextual indicators under the European Education Area strategic framework**

		2015			2021		
Indicator		Target	Czechia	EU27	Czechia	EU27	
Participation in early childhood education (age 3+)		96%	84.6%	91.9%	86.3% ²⁰¹⁹	92.8% ²⁰¹⁹	
Low achieving 15-year-olds in:	Reading	< 15%	22.0%	20.4%	20.7% ²⁰¹⁸	22.5% ²⁰¹⁸	
	Mathematics	< 15%	21.7%	22.2%	20.4% ²⁰¹⁸	22.9% ²⁰¹⁸	
	Science	< 15%	20.7%	21.1%	18.8% ²⁰¹⁸	22.3% ²⁰¹⁸	
Early leavers from education and training (age 18-24)	Total	< 9 %	6.2%	11.0%	6.4%	9.7%	
	By gender	Men		6.4%	12.5%	7.0%	11.4%
		Women		6.0%	9.4%	5.8%	7.9%
	By degree of urbanisation	Cities		5.2%	9.6%	4.8%	8.7%
		Rural areas		5.5%	12.2%	6.6%	10.0%
	By country of birth	Native		6.1%	10.0%	6.2%	8.5%
		EU-born		14.1% ^u	20.7%	17.2% ^u	21.4%
		Non EU-born		7.7% ^u	23.4%	9.0% ^u	21.6%
Tertiary educational attainment (age 25-34)	Total	45%	31.0%	36.5%	34.9%	41.2%	
	By gender	Men		24.3%	31.2%	27.1%	35.7%
		Women		38.1%	41.8%	43.3%	46.8%
	By degree of urbanisation	Cities		43.2%	46.2%	49.9%	51.4%
		Rural areas		22.8%	26.9%	26.5%	29.6%
	By country of birth	Native		31.1%	37.7%	34.0%	42.1%
		EU-born		32.6%	32.7%	54.1%	40.7%
		Non EU-born		21.2%	27.0%	42.7%	34.7%
Share of school teachers (ISCED 1-3) who are 50 years or over			42.1%	38.3%	44.3% ²⁰¹⁹	38.9% ²⁰¹⁹	

The 2018 EU average on PISA reading performance does not include ES; u = low reliability; Data is not yet available for the remaining EU-level targets under the European Education Area strategic framework, covering underachievement in digital skills, exposure of vocational educational training graduates to work based learning and participation of adults in learning.

Source: Eurostat (UOE, LFS); OECD (PISA).

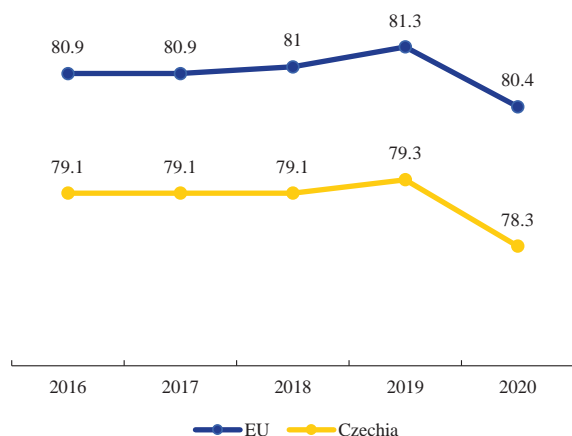
specialists in high value-added sectors.

ANNEX 14: HEALTH AND HEALTH SYSTEMS

Especially relevant in light of the ongoing COVID-19 pandemic, resilient healthcare is a prerequisite for a sustainable economy and society. This Annex provides a snapshot of the healthcare sector in Czechia.

Life expectancy in Czechia has improved slowly in recent years, but was still 2 years below the EU average in 2019. The COVID-19 pandemic temporarily set the country back to 2013 levels – a larger impact than in many other EU countries. As of 17 April 2022, Czechia reported 3.74 cumulative COVID-19 deaths per 1 000 inhabitants and 363 confirmed cumulative COVID-19 cases per 1 000 inhabitants. Treatable mortality poses a higher burden than in the EU as a whole, as reflected in high levels of cancer mortality.

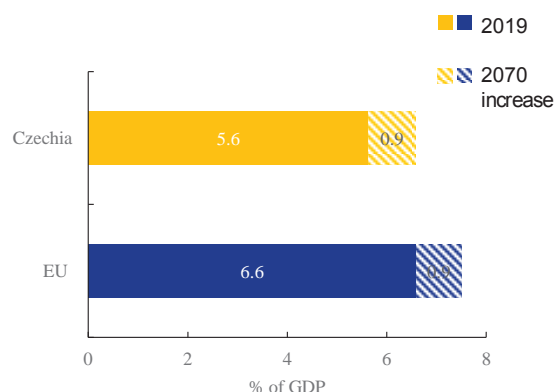
Graph A14.1: Life expectancy at birth, years



Source: Eurostat database

Health spending relative to GDP in Czechia was below the EU average in 2019. The proportion of public funding is above the EU average, resulting in a low level of out-of-pocket payments. In the long run, public expenditure on health is projected to increase by 0.9 percentage points of GDP by 2070 (the same as the EU average), raising long-term fiscal sustainability concerns.

Graph A14.2: Projected increase in public expenditure on health care over 2019-2070 (AWG reference scenario)



Source: European Commission/EPC (2021)

Czechia has levels of physicians and nurses above the EU average, but they are unevenly distributed across regions. The high age profile of practising doctors is also a concern. Strengthening primary and integrated care and prevention are important strategic goals.

Through its Recovery and Resilience Plan, Czechia plans to invest EUR 1.1 billion (16.1% of the total RRP) to strengthen its health system, mainly investing in oncological care, e-health and research & development. Czechia registered the third biggest increase over the last 10 years (2011-2021) in the proportion of the population aged 65 or older⁽⁵⁷⁾. This, coupled with the fact that the supply of long term care is often considered inadequate, indicates an urgent need for a rapid increase of community and family-based social and health services⁽⁵⁸⁾.

⁽⁵⁷⁾ Eurostat

⁽⁵⁸⁾ ESPN thematic report on challenges in long-term care Czech Republic 2018

Table A14.1: Key health indicators

	2016	2017	2018	2019	2020	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	128.2	127.2	124.2	120.3		92.1 (2017)
Cancer mortality per 100 000 population	277.0	272.9	272.1	272.4		252.5 (2017)
Current expenditure on health, % GDP	7.1	7.1	7.5	7.8		9.9 (2019)
Public share of health expenditure, % of current health expenditure	82.0	82.1	83.0	81.8		79.5 (2018)
Spending on prevention, % of current health expenditure	3.0	2.9	2.7	2.5		2.8 (2018)
Acute care beds per 100 000 population	414.3	410.9	408.0	404.1		387.4 (2019)
Doctors per 1 000 population *			4.0	4.1		3.8 (2018)
Nurses per 1 000 population *	7.9	8.5	8.5	8.6		8.2 (2018)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day **				16.9	13.4	14.5 (2020)

Doctors' density data refer to practising doctors in all countries except FI, EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries (imputation from year 2014 for FI) except IE, FR, PT, SK (professionally active) and EL (nurses working in hospitals only). Break in time series for numbers of nurses in Czechia in 2017. More information: https://ec.europa.eu/health/state-health-eu/country-health-profiles_en
Source: Eurostat Database; except: * Eurostat Database and OECD, ** ECDC.

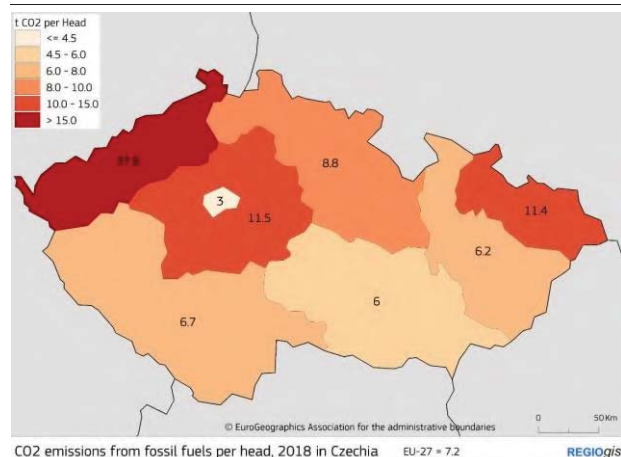
ANNEX 15: ECONOMIC AND SOCIAL PERFORMANCE AT REGIONAL LEVEL

The regional dimension is an important factor when assessing economic and social developments in Member States. Taking into account this dimension enables a well-calibrated and targeted policy response that fosters cohesion and ensures sustainable and resilient economic development across all regions. Although they have been falling since 2008, regional disparities in Czechia are now increasing again. The country has a highly developed capital city (Prague) where GDP per head was at 205% of the EU-28 average in 2019. In the rest of the country, there is a group of six regions that are moderately developed, where the GDP per head ranges between 74% and 83% of the EU-27 average), and a less developed (Northwest, Severozápad) where GDP per head corresponds to 64% of the EU average.

All Czech regions are converging towards the EU average. As a result, Czechia has continued its convergence with the EU average, from 84.4% of the EU per head average in 2010 to 93.1% in 2019. Despite this positive trend, significant intra-regional socioeconomic disparities remain. The annual real GDP per head growth between 2010 and 2019 was relatively stable, with no particularly large variations between the different regions, with the exception of the Northwest region, where the gap persists. Real GDP per head grew by only 0.6% in this region between 2010 and 2019. Different socio-economic indicators, including depopulation, indicate that the situation in the Northwest is not improving. The main reason for this is the structure of the local

economy, where old industries, in particular the coal mining and coal-fired energy sectors, prevail.

Graph A15.1: CO2 emissions from fossil fuels per head, 2018



Source: European Commission

The 2021-2027 Just Transition Fund investments in Czechia will take place in the Moravian-Silesian and the Northwest regions. Czech coal regions face problems in different areas: the highest unemployment rates in the country and the educational structure of the population make these regions less attractive to investors from higher added value sectors. Brownfields in towns and villages contribute to the negative image of these regions. These interlinked areas influence each other. A successful economic and energy transformation must lead to economic diversification and reconversion. Investments will focus on providing support to small and medium-sized enterprises, regeneration and decontamination of sites and repurposing

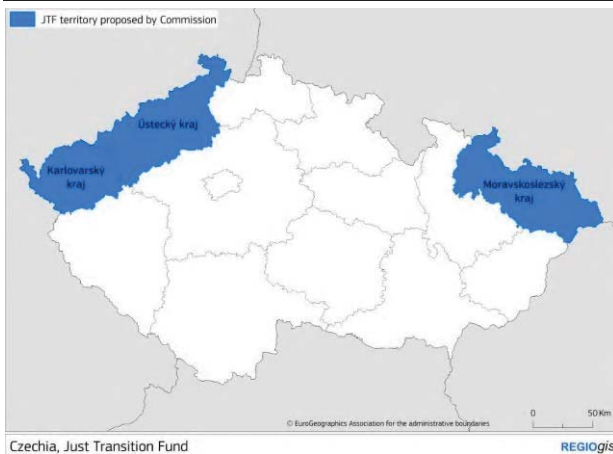
Table A15.1: Selected indicators at regional level - Czechia

NUTS 2 Region	GDP per head (PPS)	Productivity (GVA (PPS) per person employed)	GDP growth	GDP per head growth	Net migration	At-risk-of-poverty or social exclusion	Early school leavers	CO ₂ emissions from fossil fuels per head	Innovation performance
	EU27=100, 2019	EU27=100, 2018	Avg % change on preceding year, 2010-2019	Avg % change on preceding year, 2010-2019	Total % change, 2011-2019	% of active population, 2019	% of population aged 18-24, 2017	tCO ₂ equivalent, 2018	RIS regional performance group
European Union	100	100	1.57	1.39	2.2		10.4	7.2	
Česká republika	93	85	2.47	2.30	1.9	12.50	6.5		
Praha	205	131	3.07	2.62	5.5	7.90	2.1	3.0	Strong innovator -
Střední Čechy	83	84	3.31	2.39	8.2	9.60	5.2	11.5	Moderate innovator
Jihozápad	78	75	2.11	1.95	2.5	9.60	6.6	6.7	Moderate innovator -
Severozápad	64	64	0.49	0.66	-0.4	21.50	16.1	37.8	Emerging innovator
Severovýchod	76	74	2.65	2.57	0.6	12.90	6.1	8.8	Moderate innovator -
Jihovýchod	83	77	2.35	2.13	0.9	12.50	4.8	6.0	Moderate innovator
Střední Morava	75	70	2.57	2.63	-0.6	12.90	5.2	6.2	Moderate innovator -
Moravskoslezsko	74	74	1.70	1.99	-1.7	14.90	7.6	11.4	Moderate innovator -

Source: Eurostat, *EDGAR Database.

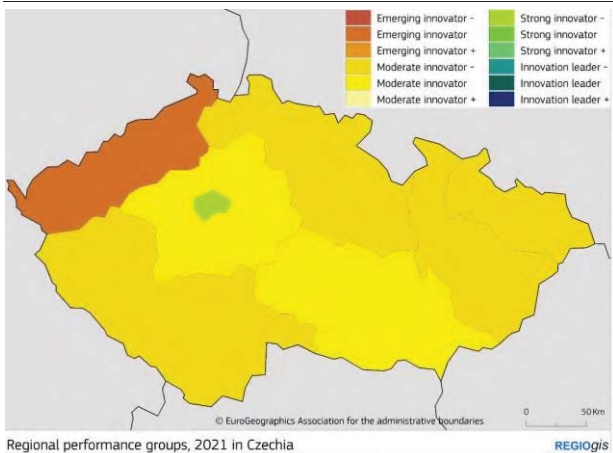
projects. The coal regions need to stimulate the deployment of new technologies and infrastructures for clean energy. The Just Transition Fund will support actions focused on upskilling, reskilling and creating new job opportunities. In addition, it will help to reform the education system by creating new study programmes.

Graph A15.2: Territories most affected by the climate transition in Czechia



Source: European Commission

Graph A15.3: Innovation performance in Czechia



Source: European Commission

In 2018, R&D intensity was the highest in the capital region where it corresponded to 2.7% of GDP and where 10.4% of workers were employed in high technology sectors. At the other end of the spectrum, R&D intensity was only 0.3% of GDP in the less developed region of Severozápad and employment in high-tech sectors represented 2.1% of total employment.

The country shows large regional disparities in terms of jobs, education, health and social developments. Even more developed regions include municipalities that

suffer from high rates of early school leaving, absenteeism, school year repetition and poverty. Excess mortality from week 9 of 2020 increased by between 14.8% (Prague) and 26.8% (the Northwest region), compared to the average mortality in the same weeks in 2015-2019. Attention must therefore be paid not only to challenges at regional level, but also at intra-regional level, notably in the peripheral areas and in socially disadvantaged municipalities, which require targeted investment.

The Annex provides an overview of key developments in the financial sector of Czechia. The banking sector remains resilient, despite the pandemic. Total banking sector assets stood at almost 146% of GDP in 2021, of which the share of the five largest banks was 65.3% at the end of 2020, marginally higher than in 2019. The majority of banks' assets are foreign-controlled. The loan-to-deposit ratio has declined slightly since 2019⁽⁵⁹⁾, due to a larger increase in deposits compared to loans. Household loans saw a steady increase in contrast to the evolution of credit for non-financial corporations. After a slight increase in 2020, the non-performing loans ratio dropped to the pre-pandemic level of 1.7%. Banks capitalisation is high, partially due to the measures taken by the Czech National Bank (CNB) in response to the pandemic. The return on equity declined significantly in 2020, but partially recovered in 2021. The efficiency of the banking sector has recently deteriorated, as shown by the increase of cost-to-income ratio, but it remains above the EU average.

The residential real estate market exhibits medium vulnerabilities that are mitigated by macro-prudential policy measures. In its most recent assessment, the European Systemic Risk Board (2022)⁽⁶⁰⁾ identified the following key vulnerabilities: house price overvaluation, high and accelerating house price growth, high mortgage credit growth, and loosening of lending standards. During the last 2 years, residential property prices have increased by 6.7% annually on average, accelerating to 22% in Q3 2021, although the rate varies among Czech regions. The overvaluation of apartment prices reached almost 25% in Q2 2021. The volume of new mortgages increased, in terms of volume as well as the average loan size, and lending standards eased. These developments led the CNB to apply macro-prudential measures, such as lowering the basic loan-to-value limit

and setting upper limits on the deb-to-income and debt service-to-income ratios with effect from 1 April 2022. In addition, the CNB put forward quantitative and qualitative recommendations for prudent mortgage lending. Given the relatively low internal ratings-based risk weights for mortgage exposures and increased risks related to developments in the household sector, the CNB decided to increase the countercyclical buffer in several steps, up to 2.5%, with effect from 1 April 2023.

⁽⁵⁹⁾ ECB,

https://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=359.CBD2.Q.CZ.Wo.67.Z.Z.A.A.l3006.Z.Z.Z.Z.Z.Z.PC

⁽⁶⁰⁾ ESRB, Vulnerabilities in the residential real estate sectors of the EEA countries, February 2022, <https://www.esrb.europa.eu/news/pr/date/2022/html/esrb.pr220211~9393d5e991.en.html>.

Table A16.1: **Financial soundness indicators**

	2017	2018	2019	2020	2021
Total assets of the banking sector (% of GDP)	143.0	135.6	133.2	142.1	145.8
Share (total assets) of the five largest bank (%)	63.7	64.5	64.8	65.3	-
Share (total assets) of domestic credit institutions (%) ¹	8.3	8.6	8.9	8.2	8.4
Financial soundness indicators: ¹					
- non-performing loans (% of total loans)	2.8	2.1	1.7	1.9	1.7
- capital adequacy ratio (%)	18.1	18.3	19.7	22.1	21.5
- return on equity (%)	13.0	13.3	13.9	6.7	10.0
NFC credit growth (year-on-year % change)	6.1	6.3	3.9	-0.6	8.3
HH credit growth (year-on-year % change)	8.4	7.9	6.6	6.8	10.2
Cost-to-income ratio (%) ¹	47.1	47.0	47.0	49.6	49.6
Loan-to-deposit ratio (%)¹	94.9	101.9	103.9	102.1	94.4
Central bank liquidity as % of liabilities	0.0	0.0	0.0	0.0	-
Private sector debt (% of GDP)	80.3	83.0	78.6	81.9	-
Long-term interest rate spread versus Bund (basis points)	66.3	158.5	180.1	163.8	227.8
Market funding ratio (%)	48.2	47.0	46.0	46.1	-
Green bond issuance (bn EUR)	-	-	-	-	0.9

Last data: Q3 2021.

Source: ECB, Eurostat, Refinitiv

This Annex provides an indicator-based overview of Czechia's tax system. It includes information on the tax structure, i.e. the types of tax that Czechia derives most revenue from, the tax burden for workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance and on the risks of aggressive tax planning activity.

Czechia's tax revenues are relatively low compared to the EU average, except for consumption taxes. Total tax revenues have increased by about 3% of GDP since 2010 but they remain below the EU average (at 36% in 2020 compared to an EU average of 40.2%). Tax revenues in all categories remain below the EU average except for consumption taxes (11.3% of GDP in 2020, compared to an EU average of 10.8%). Since 2010, there has been an increase in revenues from labour taxes (by 3.3 pps of GDP to 20.3%) and, to a lesser extent, in consumption taxes (by 0.6 pps), while revenues from capital taxes fell (by 0.7 pps of GDP to 4.4%). Tax revenues from environmental taxes are slightly below the EU average and have decreased in the recent years (at 1.9% of GDP, compared to the EU

average of 2.2%). Revenue from property taxation (including recurrent property taxation) is very low.

The tax burden on labour is relatively high in Czechia for low earners and second earners. In particular, the tax wedge for single workers earning 50% of the average wage was above the EU average in 2021 (at 35.1% against an EU average of 31.9%), and so was the tax wedge for a second earner earning 67% of the average wage (see Graph 18.1). At higher earnings (e.g. at 167% of the average wage), the total tax burden was close to the EU average in 2021. The total tax burden has diminished as a result of a 2021 tax reform which makes the tax schedule more progressive and reduces the tax base. The ability of the tax and benefit system to reduce inequality (measured by its ability to reduce the GINI coefficient) has somewhat diminished since 2010 and is below the EU average.

Czechia is doing relatively well in the area of tax administration digitalisation, but work on compliance and enforcement could be further improved. Outstanding tax arrears have remained stable at 16.8% of total net revenue. This is below the EU27 average of 31.8%, though that average is inflated by very large

Table A17.1: Taxation indicators

		Czechia					EU-27				
		2010	2018	2019	2020	2021	2010	2018	2019	2020	2021
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	32.9	36.0	35.9	36.0		37.9	40.1	39.9	40.1	
	Labour taxes (as % of GDP)	17.0	19.0	19.2	20.3		20.0	20.7	20.7	21.5	
	Consumption taxes (as % of GDP)	10.7	11.6	11.5	11.3		10.8	11.1	11.1	10.8	
	Capital taxes (as % of GDP)	5.1	5.4	5.2	4.4		7.1	8.2	8.1	7.9	
	Total property taxes (as % of GDP)	0.5	0.6	0.5	0.3		1.9	2.2	2.2	2.3	
	Recurrent taxes on immovable property (as % of GDP)	0.2	0.2	0.2	0.2		1.1	1.2	1.2	1.2	
Progressivity & fairness	Environmental taxes as % of GDP	2.3	2.0	2.0	1.9		2.4	2.4	2.4	2.2	
	Tax wedge at 50% of Average Wage (Single person) (*)	35.7	38.9	39.4	39.6	35.1	33.9	32.4	32.0	31.5	31.9
	Tax wedge at 100% of Average Wage (Single person) (*)	42.1	43.7	44.0	44.0	39.9	41.0	40.2	40.1	39.9	39.7
	Corporate Income Tax - Effective Average Tax rates (1) (*)		17.9	17.9	18.3			19.8	19.5	19.3	
	Difference in GINI coefficient before and after taxes and cash social transfers (pensions excluded from social transfers)	8.0	6.7	6.7	6.7		8.4	7.9	7.4	8.3	
Tax administration & compliance	Outstanding tax arrears: Total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		16.8	16.8				31.9	31.8		
	VAT Gap (% of VTTL)		13.8	14.3				11.2	10.5		
Financial Activity Risk	Dividends, Interests and Royalties (paid and received) as a share of GDP (%)		6.9	7.8	4.9			10.7	10.5		
	FDI flows through SPES (Special Purpose Entities), % of total FDI flows (in and out)		0.0	0.0	0.0			47.8	46.2	36.7	

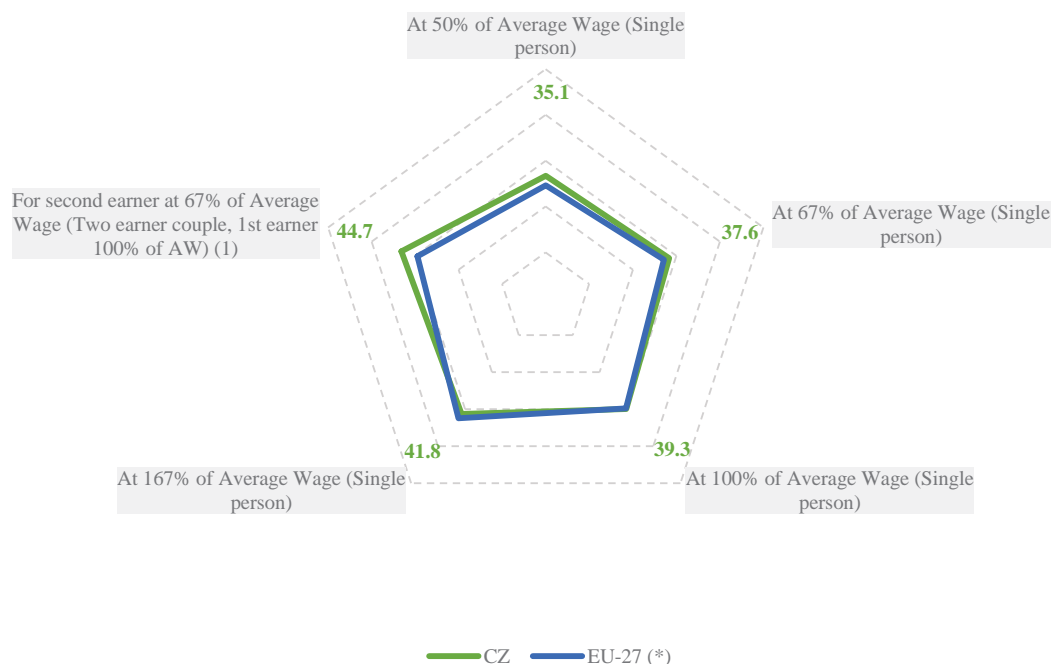
(1) Forward-looking Effective Tax Rate (OECD)

(*) EU-27 simple average, as no aggregated EU-27 value

For more data on tax revenues as well as the methodology applied see European Commission, Directorate-General for Taxation and Customs Union, Taxation trends in the European Union: data for the EU Member States, Iceland, Norway and United Kingdom: 2021 edition, Publications Office, 2021, <https://data.europa.eu/doi/10.2778/843047> and the 'Data on Taxation' webpage (https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en). For more details on VAT GAP see European Commission, Directorate-General for Taxation and Customs Union, "VAT gap in the EU : report 2021", Publications Office, 2021, <https://data.europa.eu/doi/10.2778/30877>

Source: European Commission and OECD

Graph A17.1: Tax wedge 2021 (%)



The tax wedge measures the difference between the total labour cost of employing a worker and the worker's net earnings: sum of personal income taxes and employee and employer social security contributions, net of family allowances, expressed as a percentage of total labour costs (the sum of the gross wage and social security contributions paid by the employer).

(1) The second earner average tax wedge measures how much extra personal income tax (PIT) plus employee and employer social security contributions (SSCs) the family will have to pay as a result of the second earner entering employment, as a proportion of the second earner's gross earnings plus the employer SSCs due on the second earner's income. For a more detailed discussion see OECD (2016), Taxing Wages 2016, OECD Publishing, Paris.

http://dx.doi.org/10.1787/tax_wages-2016-en

(*) EU-27 simple average, as no aggregated EU-27 value

Source: European Commission

values in a small number of Member States. The VAT gap (an indicator of the effectiveness of VAT enforcement and compliance) has increased slightly in Czechia by 0.5 pps to 14.3%, which is above the EU average gap of 10.5%. The average forward-looking effective corporate income tax rates were moderately below the EU average in 2020.

ANNEX 18: KEY ECONOMIC AND FINANCIAL INDICATORS

Table A18.1: Key economic and financial indicators

	2004-07	2008-12	2013-18	2019	2020	2021	forecast	
							2022	2023
Real GDP (y-o-y)	5.9	0.2	3.1	3.0	-5.8	3.3	1.9	2.7
Potential growth (y-o-y)	4.5	1.7	2.4	2.5	1.3	1.3	1.6	1.7
Private consumption (y-o-y)	3.6	0.6	2.9	2.7	-6.8	4.4	2.0	2.0
Public consumption (y-o-y)	0.2	-0.1	2.2	2.5	3.4	1.6	0.6	1.3
Gross fixed capital formation (y-o-y)	7.1	-1.9	3.7	5.9	-7.5	0.9	3.1	5.6
Exports of goods and services (y-o-y)	18.1	4.2	5.0	1.5	-6.9	5.1	1.2	3.5
Imports of goods and services (y-o-y)	15.5	2.9	5.3	1.5	-6.9	11.5	1.2	3.6
Contribution to GDP growth:								
Domestic demand (y-o-y)	3.8	-0.3	2.7	3.3	-4.5	2.6	1.8	2.7
Inventories (y-o-y)	0.6	-0.4	0.2	-0.3	-0.8	4.5	0.0	0.0
Net exports (y-o-y)	1.5	1.0	0.1	0.0	-0.5	-3.8	0.1	0.0
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0.5	-0.1	0.6	0.3	-0.2	-0.1	0.3	0.0
Capital accumulation (y-o-y)	1.1	0.8	0.6	0.9	0.6	0.5	0.6	0.7
Total factor productivity (y-o-y)	2.9	1.0	1.2	1.3	1.0	0.8	0.8	0.9
Output gap	3.5	-0.1	-0.2	2.9	-4.3	-2.4	-2.2	-1.2
Unemployment rate	7.2	6.4	4.6	2.0	2.6	2.8	2.6	2.6
GDP deflator (y-o-y)	2.1	0.9	1.7	3.9	4.4	4.1	7.4	4.7
Harmonised index of consumer prices (HICP, y-o-y)	2.3	2.7	1.2	2.6	3.3	3.3	11.7	4.5
Nominal compensation per employee (y-o-y)	6.0	2.5	4.1	7.2	3.2	5.7	2.4	5.3
Labour productivity (real, hours worked, y-o-y)	4.9	0.3	1.8	2.7	0.4	0.3	-0.1	2.3
Unit labour costs (ULC, whole economy, y-o-y)	1.3	2.1	2.2	4.3	7.7	2.4	2.8	2.8
Real unit labour costs (y-o-y)	-0.7	1.2	0.5	0.4	3.2	-1.6	-4.3	-1.8
Real effective exchange rate (ULC, y-o-y)	3.7	1.9	0.9	1.1
Real effective exchange rate (HICP, y-o-y)	3.1	2.1	0.3	0.3	0.8	3.8	.	.
Net savings rate of households (net saving as percentage of net disposable income)								
	7.2	7.4	6.9	8.5	16.8	.	.	.
Private credit flow, consolidated (% of GDP)	7.9	4.3	4.2	1.4	2.3	.	.	.
Private sector debt, consolidated (% of GDP)	57.6	77.5	81.6	78.6	81.9	.	.	.
of which household debt, consolidated (% of GDP)	18.1	28.6	31.0	31.6	34.0	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	39.5	48.9	50.6	47.1	47.9	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)								
	.	.	.	1.5	1.6	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-2.7	-0.9	-1.1	-2.8	1.6	-4.4	-3.5	-2.8
Corporations, gross operating surplus (% of GDP)	28.6	28.2	28.9	27.5	27.1	27.3	28.9	29.8
Households, net lending (+) or net borrowing (-) (% of GDP)	1.0	1.9	1.9	2.1	7.7	9.0	5.8	4.7
Deflated house price index (y-o-y)	4.6	-0.9	4.4	6.2	5.5	.	.	.
Residential investment (% of GDP)	4.4	4.4	4.0	4.4	4.8	5.1	.	.
Current account balance (% of GDP), balance of payments								
Trade balance (% of GDP), balance of payments	-3.2	-2.3	0.6	0.3	2.0	-0.8	-2.4	-2.6
Terms of trade of goods and services (y-o-y)	1.8	3.5	6.5	6.0	6.7	3.0	.	.
Capital account balance (% of GDP)	-0.5	-0.7	0.5	0.5	1.7	0.1	-1.8	0.1
Net international investment position (% of GDP)	0.3	0.9	1.2	0.4	1.2	1.6	.	.
NIDI - NIP excluding non-defaultable instruments (% of GDP) (1)	-27.8	-43.5	-31.1	-19.8	-16.3	-15.6	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	17.8	8.6	22.7	30.2	37.4	36.4	.	.
Export performance vs. advanced countries (% change over 5 years)	30.5	41.9	58.1	61.3	61.4	71.6	.	.
Export market share, goods and services (y-o-y)	77.2	29.6	1.3	3.2	10.6	.	.	.
Net FDI flows (% of GDP)	10.0	-0.9	1.5	-0.9	4.2	-4.4	-3.3	-0.7
	-4.8	-1.7	-1.1	-2.4	-2.6	-0.1	.	.
General government balance (% of GDP)								
Structural budget balance (% of GDP)	-2.0	-3.6	-0.1	0.3	-5.8	-5.9	-4.3	-3.9
General government gross debt (% of GDP)	.	.	0.0	-0.9	-4.1	-4.9	-3.1	-3.5
	27.7	36.5	38.1	30.1	37.7	41.9	42.8	44.0

(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.

Source: Eurostat and ECB as of 2022-05-02, where available; European Commission for forecast figures (Spring forecast 2022)

ANNEX 19: DEBT SUSTAINABILITY ANALYSIS

This Annex assesses fiscal sustainability risks for Czechia over the short, medium and long term. It follows the same multi-dimensional approach as the 2021 Fiscal Sustainability Report, updated on the basis of the Commission 2022 spring forecast.

Table 1 presents the baseline debt projections. It shows the projected government debt and its breakdown into the primary balance, the snowball effect (the combined impact of interest payments and nominal GDP growth on the debt dynamics) and the stock-flow adjustment. These projections conventionally assume that no new fiscal policy measures are taken after 2023, and include the expected positive impact of investments under Next Generation EU.

Graph 1 shows four alternative scenarios around the baseline, to illustrate the impact of changes in assumptions. The 'historical SPB' scenario assumes that the structural primary balance (SPB) gradually returns to its

past average level. In the 'lower SPB' scenario, the SPB is permanently weaker than in the baseline. The 'adverse interest-growth rate' scenario assumes a less favourable snowball effect than in the baseline. In the 'financial stress' scenario, the country temporarily faces higher market interest rates in 2022.

Graph 2 shows the outcome of the stochastic projections. These projections show the impact on debt of 2 000 different shocks affecting the government's budgetary position, economic growth, interest rates and exchange rates. The cone covers 80% of all the simulated debt paths, therefore excluding tail events.

Table 2 shows the S1 and S2 fiscal sustainability indicators and their main drivers. S1 measures the consolidation effort needed to bring debt to 60% of GDP in 15 years. S2 measures the consolidation effort required to stabilise

Table A19.1: Debt sustainability analysis for Czechia

Table 1. Baseline debt projections	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Gross debt ratio (% of GDP)	30.1	37.7	41.9	42.8	44.0	45.3	46.1	47.2	49.1	51.0	53.2	55.7	58.5	61.4
Change in debt	-2.0	7.7	4.2	0.9	1.2	1.3	0.8	1.0	1.9	1.9	2.2	2.5	2.8	2.9
of which														
Primary deficit	-1.0	5.0	5.1	3.4	3.0	2.8	2.5	2.4	2.7	2.7	2.8	3.0	3.1	3.2
Snowball effect	-1.4	1.3	-1.9	-2.7	-2.0	-1.6	-1.7	-1.4	-0.8	-0.8	-0.7	-0.5	-0.3	-0.3
Stock-flow adjustment	0.4	1.4	1.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	5.3	10.7	10.9	9.1	8.8	8.8	8.9	9.1	9.7	10.3	10.9	11.5	12.3	12.9

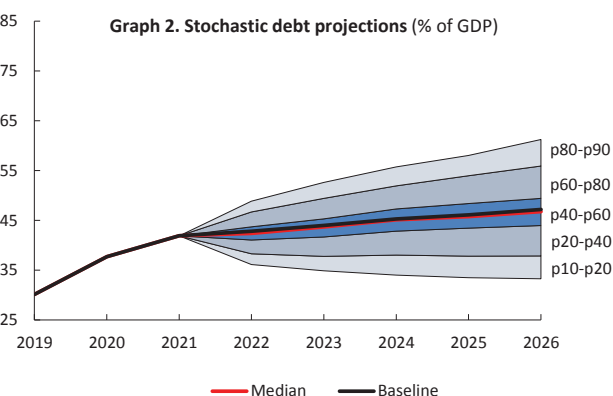
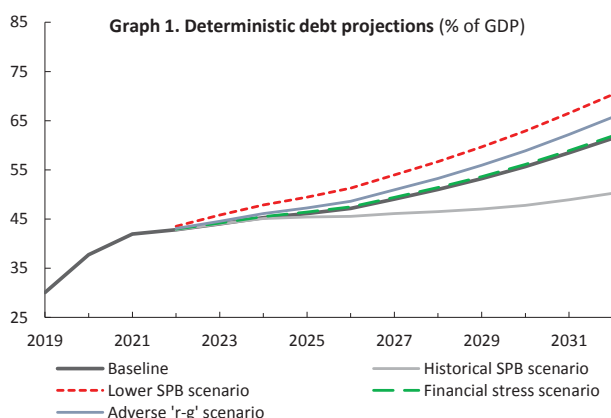


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

	S1	S2
Overall index (pps. of GDP)	1.9	7.1
of which		
Initial budgetary position	2.3	2.7
Debt requirement	-1.1	
Ageing costs	0.7	4.3
of which		
Pensions	-0.1	1.7
Health care	0.3	0.8
Long-term care	0.3	1.4
Others	0.2	0.4

Source: European Commission

debt over an infinite horizon. The *initial budgetary position* measures the effort required to cover future interest payments. The *ageing costs* component accounts for the need to absorb the projected change in ageing-related public expenditure such as pensions, health care and long-term care. For S1, the *debt requirement* measures the additional adjustment needed to reach the 60% of GDP debt target.

Finally, the heat map presents the overall fiscal sustainability risk classification (Table A19.2). The *short-term risk category* is based on the S0 indicator, an early-detection indicator of fiscal stress in the upcoming year. The *medium-term risk category* is derived from the debt sustainability analysis (DSA) and the S1 indicator. The DSA assesses risks to sustainability based on several criteria: the projected debt level in 10 years' time, the debt trajectory ('peak year'), the plausibility of fiscal assumptions and room for tighter positions if needed ('fiscal consolidation space'), the probability of debt not stabilising in the next 5 years and the size of uncertainty. The *long-term risk category* is based on the S2 indicator and the DSA.

Overall, short-term risks to fiscal sustainability are low. The Commission's early-detection indicator (S0) does not signal major short-term fiscal risks (Table A19.2).

Medium-term risks to fiscal sustainability are medium. Both elements of the Commission's medium-term analysis lead to this conclusion. First, the debt sustainability

analysis (DSA) shows that government debt is projected to rise from around 43% of GDP in 2022 to about 61% of GDP in 2032 in the baseline (Table 1). The significant sensitivity of the debt path to possible shocks to fiscal, macroeconomic and financial variables, as illustrated by alternative scenarios and stochastic simulations, generally confirms this risk assessment (Graphs A19.1 and A19.2). Moreover, the sustainability gap indicator S1 signals that an adjustment of 1.9 pps. of GDP of the structural primary balance would be needed to reduce debt to 60% of GDP in 15 years' time (Table 2). Overall, the medium risk reflects the currently large deficit and some budgetary pressure related to age-related expenditure.

Long-term risks to fiscal sustainability are high. Over the long term, the sustainability gap indicator S2 (at 7.1 pps. of GDP) points to high risks, compared to medium risks according to the DSA, leading overall to a high risk assessment. The S2 indicator suggests that, to stabilise debt over the long term, it will be necessary to address budgetary pressures stemming from population ageing, especially those related to pension, long-term care and health care expenditure (Table 2).

Table A19.2: Heat map of fiscal sustainability risks for Czechia

Short term		Medium term							Long term			
Overall (S0)	Overall (S1+DSA)	S1	Overall	Debt sustainability analysis (DSA)						S2	Overall (S2+DSA)	
				Deterministic scenarios					Stochastic projections			
				Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	MEDIUM	MEDIUM	MEDIUM	Overall	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	HIGH	HIGH
				Debt level (2032), % GDP	61	50	70	66	62			
				Debt peak year	2032	2032	2032	2032	2032			
				Fiscal consolidation space	54%	33%	83%	54%	54%			
				Probability of debt ratio exceeding in 2026 its 2021 level					68%			
				Difference between 90th and 10th percentiles (pps. GDP)					28			

(1) Debt level in 2032: green: below 60% of GDP, yellow: between 60% and 90%, red: above 90%. (2) The debt peak year indicates whether debt is projected to increase overall over the next decade. Green: debt peaks early; yellow: peak towards the middle of the projection period; red: late peak. (3) Fiscal consolidation space measures the share of past fiscal positions in the country that were more stringent than the one assumed in the baseline. Green: high value, i.e. the assumed fiscal position is plausible by historical standards and leaves room for corrective measures if needed; yellow: intermediate; red: low. (4) Probability of the debt ratio exceeding in 2026 its 2021 level: green: low probability, yellow: intermediate, red: high (also reflecting the initial debt level). (5) The difference between the 90th and 10th percentiles measures uncertainty, based on the debt distribution under 2000 different shocks. Green, yellow and red cells indicate increasing uncertainty.

Source: European Commission (for further details on the Commission's multi-dimensional approach, see the 2021 Fiscal Sustainability Report).