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2024 Country Report - Czechia

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on the economic, social, employment, structural and budgetary policies of Czechia

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European Commission

Czechia

2024 Country Report

ECONOMIC AND EMPLOYMENT SNAPSHOT

The Czech economic model faces challenges related to decarbonisation and a shortage of workers

Czechia's economic growth has been hampered by one of the highest inflation rates in the EU ([1]). In the pre-pandemic years, domestic demand was a main driver of economic growth, but the pandemic lockdown and, more recently, the high inflation rates registered in 2022 (14.8%) and 2023 (12.0%) negatively affected Czechia's growth rates and led to a real GDP contraction of 0.3% in 2023. The decline in consumer spending in 2022 and 2023 was triggered by a decline in purchasing power and an increase in precautionary savings. Furthermore, as the central bank tightened the monetary policy to fight inflation, construction activity and especially residential construction also slowed. Companies were confronted with higher input costs, but accumulated savings allowed them to continue investing in equipment. With the help of public investment supported also by EU funds, overall investment in the economy still rose by 4.0% in 2023.

Growth is restarting but risks and new challenges related to competitiveness and productivity are emerging. On the back of a decline in inflation, loosening financing conditions and an increase in real disposable income, economic growth is forecast to gradually restart. Czechia's GDP is expected to grow by 1.2% in 2024 and 2.8% in 2025 (see details in Annex 20). However, medium-term growth is likely to face challenges. Labour productivity growth has been decelerating since 2017 and even reversed in 2022. In terms of export market share (measured in volumes), Czechia has fared worse than the EU average since 2018, losing 4.1% of export market share, though in 2022, the trend slightly reversed, with Czechia's export market share growing by 2.0%. Besides cyclical influences, structural challenges remain, including the need to phase out fossil fuels and to switch to cleaner technologies, a shortage of workers, and risks from further energy and raw material price shocks.

Exports have been recovering and are still dominated by the industry. The trend of growth in exports restarted in the post-pandemic years. Industrial goods are still the main driver of this growth, accounting for 81% of exports in 2023. Industry also accounted for 25% of GDP, compared to 19% for the EU. Local manufacturers are well integrated into the global value chain and have been a main driver of economic growth over the past decade. In particular, motor vehicles and transport equipment accounted for over 30% of goods exports in 2023, and the volumes of cars exported are still increasing, though they remained below those of pre-pandemic years. However, over the past five years, exports of services have increased much faster than exports of goods, led by telecom and IT services, which have also gained a higher percentage of gross value added.

The higher share of industry in local GDP creates risks but also opportunities for improving competitiveness. The higher share of industry in Czechia's GDP also means a higher energy intensity of the economy (see Annex 5). The energy sector is still heavily reliant on fossil fuels (see Annex 7). This leaves the economy exposed to further energy price shocks, which could be counteracted by continuing the switch to clean sources. The green transition also offers opportunities for

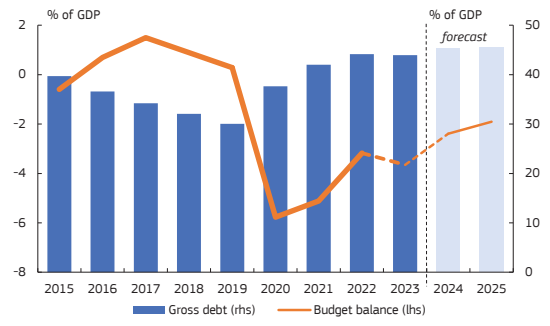
([1]) The cut-off date for the data used to prepare the 27 Country Reports was 15 May 2024.

the Czech industry, which could benefit more from the production of green technologies, an area where local producers are still lagging behind. Improving the innovation environment and companies' access to non-bank finance – including private capital – and reducing regulatory burdens could help address emerging competitiveness challenges.

Lower revenue and population ageing weakens government finances

The government deficit and debt are set to drop below 3% and remain below 60% of GDP respectively. The government cut spending and increased some revenue in 2024. On the expenditure side, Czechia withdrew measures to counteract the impact of high energy prices and reduced government subsidies to renewable energy sources. On the revenue side, the country increased the corporate income tax and social contributions. The debt-to-GDP ratio is expected to stabilise below the 60% threshold, mostly driven by a negative headline balance being partly offset by GDP growth.

Graph 1.1: **Key fiscal indicators**



Source: Eurostat, European Commission

Czechia's tax revenue is relatively low, reflecting a suboptimal tax mix. Czechia's tax revenue is relatively low in relation to its GDP, and has been further reduced by a big personal income tax cut implemented in 2021. Most revenues come from taxation of labour, mostly due to relatively high social contributions. The tax burden for low-wage earners stays above the EU average. The above-EU-average tax burden on second earners in families with children lowers the incentive to (re-)enter the workforce. Revenue from environmental taxation is below the EU average, and property taxation remains very low (see Annex 19).

Fiscal challenges are set to increase in the medium and long run. According to the Commission's 2024 ageing report, a projected increase in the old-age dependency ratio, the capping of the Czech retirement age, as well as a still high number of people taking early retirement would lead to an increase in total ageing costs of around 4 percentage points by 2070, split between spending on pensions, healthcare, and long-term care. Unless financed by a corresponding growth in revenues, the projected rise in age-related spending could increase the fiscal sustainability risks in the medium and long term (see Annex 21).

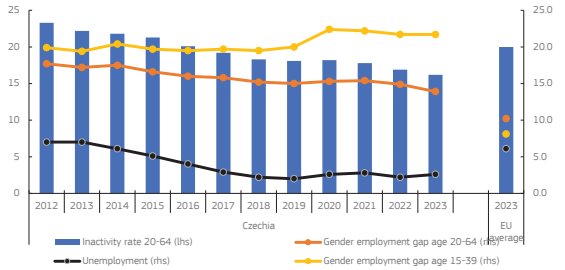
A continuous shortage of workers hampers economic growth and competitiveness

Further economic growth is also hampered by a serious shortage of workers. With a 2.6% unemployment rate in 2023 (against an EU average of 6.1%) and an 81.7% employment rate ([2]) (against an EU average of 75.3%, and less than 1 percentage point below the 2030 national target of 82.2%), Czechia continues to face a serious shortage of workers. This poses difficulties for economic growth, with firms pointing to shortages of skilled staff as one of the main investment barriers. Despite declining in real terms and growing less than in other central and eastern European countries, the 3-year cumulative nominal unit labour cost growth reached 15.8% in 2023, against an EU average of 10%, adding further to

([2]) For the population aged 20-64.

competitiveness pressures. While the overall employment rate is high, further measures are possible to increase the supply of workers. These include: (i) incentivising women to work or look for a job through increased provision of childcare and long-term care services; (ii) encouraging older people to work or look for a job; (iii) getting Ukrainian refugees into work; and (iv) attracting workers from abroad.

Graph 1.2: **Labour market indicators**



Source: Eurostat

While Czechia has a low share of people at risk of poverty or social exclusion, the recent high inflation led to a decline in real wages of more than 9% across 2022 and 2023. Czech minimum wage earners experienced one of the steepest drops in purchasing power in the EU. Compared to the EU average, Czechia has a low share of people at risk of poverty or social exclusion (11.8%, compared to an EU average of 21.6%). Certain groups face challenges to get into work, including women with young children, Ukrainian refugees, and older workers. Indebtedness continues to be a problem, with 660 000 people being affected by over 4 million seizures, pushing people into poverty and the grey economy. Unemployment and poverty also persist in socially excluded localities, often among the Roma minority. These problems are exacerbated by a lack of social housing – an issue being addressed by upcoming legislation on affordable housing and by construction projects financed by the Recovery and Resilience Facility. Energy poverty is also an issue, with the bottom three income deciles of the population spending on average 15.7% of their disposable income on energy in 2023, well above the EU average of 10.0%.

Czechia faces major long-term social care and healthcare challenges, which are expected to worsen because of population ageing. Currently, there is an estimated shortage of 15 000-30 000 places in long-term care (of which there are currently 75 000), an overwhelming reliance on residential services, and a declining capacity of community-based care services, despite surveys showing that users prefer such care. Furthermore, improvement is hindered by a fragmented and unstable financing environment, regulatory barriers to integrated social care and healthcare, and an overall lack of data ([3]).

([3]) https://www.apsscr.cz/media/a4-financovani-terenni-sluzby-2023-final.pdf

Box 1:

Czechia's competitiveness in brief

After the pandemic and the energy crisis, the competitiveness of the Czech economy is recovering. Czechia's trade integration is above the EU average and Czech companies remain an essential link in the value chain of the European manufacturing industry. Other sectors – like IT – are gaining importance. The Czech recovery and resilience plan aims to comprehensively tackle several competitiveness challenges by improving the business environment, including by simplifying and streamlining construction permits and grid connection for renewables or by implementing anti-corruption measures. Furthermore, cost competitiveness pressures have eased recently.

However, competitiveness challenges remain:

- **weaknesses in public administration**, which slow down the response to challenges, lower the quality of services provided to people and businesses, hinder efficiency, make it difficult to achieve savings, and undermine consistency and implementation across policies;
- **weaknesses in the business environment and the housing market**, which hold back productivity, competitiveness, innovation, and mobility of workers;
- **slow industrial transformation and clean energy transition**, which poses risks to the competitiveness, security and stability of the economy, and to preventing energy poverty; and
- **labour market and education issues**, which make it difficult to encourage people to work or look for a job, further improve the provision of childcare facilities, tackle labour skills mismatches, ensure quality of education, make education more inclusive, and increase participation in higher education.

Box 2:

UN Sustainable Development Goals (SDGs)

Czechia is making progress in achieving SDG 8 (Decent work and economic growth) and SDG 9 (Industry, innovation and infrastructure), while it has not made any progress on SDG 4 (Quality education). Czechia needs to step up its work to close the gap with the EU average, particularly on SDGs 5 (Gender equality) and 13 (Climate action). The implementation of SDG 5, which is related to gender equality, is behind the EU average. This is notably due to gender employment and pay gaps as well as the lower share of women in leadership positions. Czechia is also lagging behind the EU average on SDG 13, which is related to climate action. This is notably due to higher net greenhouse gas emissions and a lower share of renewable energy in gross final energy consumption.

Out of the 17 indicators, 8 remain below the EU average. These relate to environmental stability (SDGs 6, 7, 12, 13), fairness (SDGs 3, 4, 5) and productivity (SDG 9).

IMPLEMENTATION OF KEY REFORMS AND INVESTMENTS USING EU INSTRUMENTS

Funding from the Recovery and Resilience Facility (RRF) and cohesion policy is mutually reinforcing Czechia's efforts to boost its competitiveness and foster sustainable growth. In addition to the EUR 9.2 billion of RRF funding described in Annex 3, cohesion policy provides Czechia with EUR 21.1 billion for the 2021-2027 period. Support from these two instruments combined represents close to 10% of the country's GDP, compared to the EU average of 4.1% of GDP (see Annex 4).

Under its recovery and resilience plan (RRP), Czechia has launched important policy measures that are expected to improve its competitiveness. In particular, the RRP envisages major reforms in the areas of digital public administration, education, labour market, long-term care, healthcare, and renewable energy sources, including permitting processes. Czechia is also making substantial investments in the green transition, the digital transition of public services and business, education, healthcare, labour market participation and social services, and supporting SMEs.

In 2023, Czechia revised its RRP, adding several new reforms and investments increasing the overall ambition of the plan. The comprehensive new REPowerEU chapter added 15 reforms and nine investments that aim to improve the energy efficiency of buildings, accelerate the deployment of renewable energy sources, strengthen the electricity grid, promote sustainable transport, and streamline permitting procedures. In addition, new measures have been included to support provision and reform of affordable housing, improve childcare services, and increase cybersecurity.

The implementation of Czechia's recovery and resilience plan is underway, however timely completion requires increased efforts. Czechia has submitted two payment requests, corresponding to 65 milestones and targets in the plan and resulting in an overall disbursement of EUR 2.69 billion on 2 April 2024 (see Annex 3). The size and complexity of the plan, and challenges linked to absorption capacity, call for accelerating investments and addressing emerging delays while strengthening administrative capacities to ensure that reforms and investments can be completed on time. Investments, in particular, are highly concentrated towards the end of the RRP implementation and merit special attention.

Cohesion policy funding helps tackle Czechia's growth and competitiveness challenges and reduce the country's territorial and social disparities. Under the 2014-2020 cohesion policy programming period, support focused on research and innovation, reduction of environmental risks, social cohesion, and transport. For the current 2021-2027 programming period, financing aims to support the green transition and social cohesion, improving people's living and working conditions.

Unlocking the green and digital transition

The RRF and cohesion policy funds supported measures to unlock green and digital transformation and boost competitiveness. Measures under the RRP helped modernise and increase the safety of railways and supported project preparation for electrification, thus promoting sustainable transport modes. RRP measures also increased

the flood protection and water retention of lands and municipalities to increase the capacity to adapt to environmental risks. In addition, the RRF now supports projects of Czech companies that aim to reduce water consumption and apply circular solutions for businesses. The RRP is delivering significant reforms as well, including the simplified single environmental opinion and legislative changes related to the permitting and connection procedures for renewable energy sources (Lex RES I and II). These enable investments in the green transition from EU funds across the board. Complementarily, the cohesion policy funds invested in the electrification of railway lines, water management and flood protection, deployment of renewable energy, and energy efficiency renovations, among other things.

Czechia continued to improve its competitive edge not only by greening but also by digitalising its economy. With the help of cohesion policy funds and the RRF, Czechia already increased the cybersecurity of public information systems, and invested in the use of 5G technology for municipalities. The continued digitalisation of public services and reforms supporting the efficient deployment of connectivity infrastructure constitute another push towards a digital economy promoted by the RRF.

Building a resilient society and an economy that works for people

The RRF and cohesion policy funds invested in people for economic growth and social resilience, **which are key to long-term competitiveness**. Under the RRP, the construction of an intensive medicine simulation centre began, aiming to upgrade the infrastructure for lifelong learning of healthcare professionals. Czechia has also improved its health resilience by carrying out reforms such as the adoption of the new national oncological programme for 2022-2030. The RRF also supports the construction of the Czech Oncological Institute in Prague.

Using EU funds, Czechia is investing in the education of future generations. With the help of the RRP, Czechia revised its framework educational programmes to promote digital literacy and IT skills. This reform not only gives more importance to IT learning in education but also extends its scope to cover areas such as data modelling, coding and robotics. Czechia also introduced tutoring for pupils with a disadvantaged socio-economic background, including refugees from Ukraine. Strengthening the impact of these measures, the Commission's Technical Support Instrument is helping to develop a framework for monitoring and evaluating early childhood education and care. Furthermore, the European Social Fund Plus will invest EUR 366 million to improve access to employment for 92 000 people, including young people.

Supporting companies to increase their economic potential

Complementary action of EU funds boosts Czech companies' competitiveness, **although challenges to innovation and access to finance remain.** Yet, the RRF

Box 3:

Combined action for more impactful EU funds

To boost economic growth and maximise the impact of EU funding, Czechia's RRP includes reforms that support investments under other EU instruments, creating significant synergies and complementarities between the various funds. For example, the REPowerEU chapter will fund a comprehensive reform of the advisory services for energy efficiency, training of renovation professionals, and public awareness campaigns. These measures will facilitate the implementation of investments supporting energy efficiency renovations, the creation of energy communities, and the installation of renewable energy sources in public and residential buildings in Czechia, financed by the Modernisation Fund (see further example in Annex 4).

already supports the competitiveness of companies by introducing new digital public services. In addition, it supports the preparation of new financial instruments of the National Development Bank and of the European Investment Fund. Moreover, the RRF already finances 15 new environmental research projects and the involvement of 60 firms in research cooperation, while the Just Transition Fund aims to create 455 new research jobs and support more than 200 SMEs in their green transition.

FURTHER PRIORITIES AHEAD

Czechia faces additional challenges related to the long-term sustainability of government finances, administrative capacity, innovation and the business environment, the green transition, labour market and education. Tackling these challenges will help increase Czechia's long-term competitiveness and ensure the resilience of its economy. It will also help make further progress in achieving the UN Sustainable Development Goals.

It is important that the identified challenges are addressed at both national and regional level. This will help reduce regional disparities and improve the administrative and investment capacity in a balanced way across the country.

Ensuring sustainable government finances in the face of an ageing population

While the government debt level is low, the structural deficit and long-term risks persist. Czechia has a low government debt-to-GDP ratio compared to other EU countries (44.0% of GDP in 2023, against an EU average of 81.7%). However, the structural budget deficit has increased due to permanent measures such as the personal income tax cut, which has not been offset by other revenues, and the increase in social security benefits, which has not been financed by corresponding revenue growth. Debt sustainability challenges are expected to intensify 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 assumed to increase from 34.9% in 2022 to a peak of 55.8% by 2059 according to the Commission's 2024 ageing report ([4]). This could constrain expenditure supporting the competitiveness and growth of the Czech economy.

Pension spending is expected to rise especially after 2030. Czechia narrowed the deficit in the pension system, including by reducing the indexation of pensions and imposing stricter early retirement rules. Savings made through these measures would lower pension expenditure in the short term, and -limit the expected increase in expenditure in the long term. Still, according to the 2024 ageing report, without additional changes, government pension spending is expected to increase from 8.0% of GDP in 2030 to a peak of 11.1% in 2058.

Further measures are being implemented to address fiscal sustainability. The Czech government prepared a proposal to link the statutory retirement age with life expectancy, and to slow down the growth of newly granted pensions. If implemented, these changes would improve the fiscal sustainability of the pension system. Measures supporting the supply of workers are also crucial (see the below section on tackling shortages of workers, skills mismatches and declining educational outcomes). In addition, Czechia increased property taxes in 2024. Further measures to broaden the tax base by expanding the share of taxes less detrimental to growth is an option to support economic growth and fiscal sustainability. Implementing a property valuation system which chooses the property values as the tax base, aligns property values to market values and allows for regular updates of property values, would increase the efficacy of the tax as a tool to mitigate the increases in property prices, and

([4]) 2024 ageing report, https://economy-finance.ec.europa.eu/publications/2024-ageing-report-economic-and-budgetary-projections-eu-member-states-2022-2070_en.

to put existing housing stock to its most productive use. This would raise housing affordability and people's ability to move around for work, supporting economic growth and increasing fiscal sustainability. Lastly, the Commission offers technical support to the Czech government to develop methodologies and capacity for performance budgeting and spending reviews ([5]). These budgetary tools could be used to identify inefficient government spending and include the potential savings in the budget.

To address fiscal challenges, Czechia could take action to strengthen the medium-term budgetary framework. Czechia's medium-term budgetary framework scores below the EU average (see Annex 13). The Czech Fiscal Council is tasked with the monitoring of compliance with fiscal rules and assessment of long-term sustainability of public finances. While it has an active outreach activity, there is room for improvement regarding access to information, *ex post* forecast evaluations, and external reviews.

Strengthening administrative capacity for efficient regulation and investment

Czechia's public administration is essential for the economy's competitiveness as it shapes the regulatory environment and public investment, especially in relation to the twin digital and green transitions. Overall, Czechia's public sector performance and government effectiveness remained stable and close to the EU average in 2022. However, challenges persist in talent attraction and retention, evidence-informed policymaking, strategic steering and public procurement. On the more positive side, Czechia is committed to modernising its public administration by implementing its 'Client-oriented Public Administration 2030' strategy. Maintaining the momentum driven by the Recovery and Resilience Facility (RRF) and cohesion policy funds for investing in the digitalisation of public administration and public services will remain vital for the creation of a growth-friendly and competitive regulatory environment.

The attractiveness of the public administration as an employer and talent retention in the civil service are under pressure. This particularly holds true for expert and management jobs. Amendments to the Civil Service Act entered into force in 2023, bringing in set terms of office for senior civil servants, faster recruitment processes and wider options to attract external applicants. The fragmentation of human resource management, however, hinders a more systemic approach to talent management. The size of the Czech public administration is below the EU average in both expenditure and numbers employed (see Annex 13). Still, wages are lower than in the private sector for comparable education levels and have declined in real terms by more than 10% compared to 2004, further reducing the civil service's attractiveness ([6]).

Czechia continues to have issues with evidence-informed policymaking, despite steps in the right direction. Under the recovery and resilience plan (RRP), new requirements for *ex ante* regulatory impact assessments that take sustainability into account have been developed and will be applied as of 2025. Newly created analytical units in central government should help increase analytical capabilities. However, there are still major challenges related to the use of data, whole-of-government coordination, municipal coordination, and stewardship at political level.

([5]) 2023 reform support through the Technical Support Instrument, https://reform-support.ec.europa.eu/our-projects/country-factsheets/czechia_en.

([6]) https://idea.cerge-ei.cz/files/IDEA_Studie_2_2022_Statni_zamestnanci_a_urednici/files/extfile/IDEA_Studie_2_2022_Statni_zamestnanci_a_urednici.pdf

Fragmented local administrative capacity ([7]) is a significant factor preventing, among other things, the efficient absorption of EU funds by small beneficiaries in Czechia. To increase absorption by small municipalities, small to medium-sized enterprises (SMEs) and local NGOs, the national authorities need to support applicants, for example, by appointing shared project managers and by providing comprehensive information on applying for EU funding in one place. The priority in this regard is developing targeted support for local administrative capacity building in structurally affected regions such as Severozápad and Moravskoslezsko. The good example of the Just Transition Fund shows that the regions would be activated if they had a stronger role in determining their specific needs.

Public procurement continues to suffer from various issues such as a lack of interest by companies. In 2023, the rate of single bid procedures remained high (40%, against an EU average of 29%). To improve the situation, Czechia has adopted an RRF-funded public procurement strategy and its action plan, a significant step towards strengthening efficiency, implementing sustainable goals, promoting innovation, and professionalising buyers. Nevertheless, to have results on the ground, the strategy needs to be implemented. This is also linked to the wider question of attracting and developing talent to the civil service (see Annex 12).

Strengthening innovation and the business environment

Competitiveness and productivity are held back by a suboptimal innovation ecosystem, shortages of workers and skills, and excessive administrative burden. Despite having a robust industrial and research foundation, the scientific and technological outputs fail to appropriately reflect the system's full potential. As previously observed, Czechia's R&D and innovation performance would profit from better coordination and governance of research and innovation policies. The innovation and business performance suffers from stagnating levels of investment in R&D, low patent activity, and constraints to attracting and employing foreign qualified workers. Also, the number of people with a post-secondary education qualification in science or engineering is limited, which plays a role in the skills mismatches and points to weaknesses in the education system.

Despite marked improvements in recent years, Czechia trails behind in innovation. Czechia is a moderate innovator, with a performance of just under 95% of the EU average ([8]). While the gap to the innovation leaders is still significant, there has been continuous growth since 2016. Further improvements in Czechia's innovation performance are still being held back by the ineffectiveness of technology and knowledge transfer. Improving the country's innovation performance requires stable funding to support entrepreneurship, technology transfer offices, university spin-offs, and start-up creation. Regulatory measures such as effective tax relief, employee share options and sandboxes are needed to improve the quality of the innovation and start-up ecosystems (see Annex 11).

Challenges in the quality of the business environment and access to non-bank finance persist. The 'think small first' and 'digital first' principles must be applied effectively to reduce the excessive administrative and regulatory burden on businesses (see Annex 12). By accelerating its work on the digitalisation of public services, Czechia could cut red tape and thus increase businesses' capacity to make the green transition (see Annexes 6, 10 and 12). By implementing legislative changes for simple

([7]) Czechia has the highest number of municipalities per capita in the EU (see https://www.oecd.org/regional/EU-Local-government-key-data.pdf).

([8]) 2023 European Innovation Scoreboard, country profile: Czechia, https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-cz.pdf.

and effective employment of workers from abroad, Czechia could ensure a sustainable labour market. Czechia remains below the EU average in access to venture capital financing and use of financial instruments supported by EU funds (see Annexes 10, 11 and 17). Leveraging private financing with the support of the National Development Bank together with a wider use of EU financial instruments could improve access to non-bank finance for businesses, including equity and quasi-equity financing, also helping to increase the competitiveness of Czech SMEs and start-ups. Broader measures could also be taken to promote and incentivise market financing through the capital markets.

The slow construction permitting process continues to be one of the biggest barriers to the Czech economy. This limits investment decisions by both foreign and Czech companies, slows the construction of energy and transport infrastructure, and holds back the required increase in housing supply. While RRP-funded reforms are currently being implemented, their impact is not yet visible on the ground. Furthermore, Czechia has one of the lowest property tax rates in the EU ([9]), which does not take into account the market value of land and real estate. As a result, there are limited incentives to put property to its most productive use, despite the tax increase in 2024. This is illustrated by Czechia's almost 600 000 permanently unused houses and flats ([10]). High property prices also lower housing affordability, which in turn limits mobility of workers.

Sustaining progress towards the green transition

Continued high energy and commodity prices raise concerns for the competitiveness of the economy. Despite the decrease in energy prices in 2023, gas and electricity prices are still above EU-average and pre-crisis levels. Soaring wholesale gas prices, in part related to Russia's war of aggression against Ukraine as well as global supply issues, could create additional challenges for the power sector (see Annex 7). The country's large industrial sector presents an opportunity to harness the potential of the green transition. In this respect, Czechia would also benefit from further investments in research and innovation in clean energy technologies.

To shift from coal to a more competitive mix of nuclear and renewables, Czechia must ensure sufficient backup capacity and grid infrastructure to maintain stability. Czechia faces a daunting task in phasing out coal use by 2033, given that 40% of its electricity production is currently coal-based. The fast-deteriorating economic viability of coal generation makes a sharp increase in renewable energy sources and storage solutions crucial for system stability, especially to slow down the growth in gas consumption. Additionally, the funding sources for building new nuclear units, including small modular reactors, are yet to be clarified.

Czechia's renewable energy legislation needs full implementation to ensure faster renewable deployment together with grid stability. Czechia has taken positive steps with the recent adoption of Lex RES II, especially regarding permitting. However, there are risks of substantial delays in developing a decentralised energy system. Limited grid infrastructure capacity poses a challenge in managing an increasing renewable capacity. Crucial aspects in ensuring a reliable electricity supply are modernisation and digitalisation of the electricity network, along with additional investments in grid infrastructure and incentives for flexibility, including demand response and storage.

There is still untapped potential for energy efficiency that can help improve firms' competitiveness against the background of high energy prices. Despite recent decreases in primary and final energy consumption, challenges remain in reducing

([9]) https://data.oecd.org/tax/tax-on-property.htm

([10]) https://mmr.gov.cz/getattachment/b515c571-1a07-460e-8aeb-f540825ea638/Studie-neobydlene-byty.pdf.aspx?lang=cs-CZ&ext=.pdf

consumption in the transport sector and improving the energy efficiency of the building stock. Most support measures for energy-efficiency renovations are grant-based; supplementary financial instruments could help accelerate the renovation wave in the residential and government sectors, and thus help Czechia meet its 2030 target for reducing energy consumption in buildings. The use of financial instruments would also put less strain on the government budget.

Czechia does not yet have a legal definition of energy poverty, which is one of the causes of the fragmented policy response to the problem. In 2023, the bottom three income deciles of the population spent on average 15.7% of their disposable income on energy, well above the EU average of 10.0%. The problem of energy affordability is only partially addressed by social policy and consumer protection measures. The Lex RES II amendment to the Energy Act introduced the definition of a vulnerable consumer, but work is still ongoing on a methodology to define a consumer experiencing energy poverty.

While Czechia has made progress on the green transition, persistent challenges remain in the circular economy. Particularly, Czechia would benefit from speeding up the circular economy transition and strengthening waste management policies to improve industrial competitiveness. The investment gap for the circular economy and waste is EUR 470 million per year. Czechia is at risk of missing the landfill reduction target of 10% by 2035 if it does not step up its action ([11]).

The RRP includes investments in sustainable water management. However, the chemical and ecological status of water bodies should be improved, as Czechia is at risk of missing the objectives of the Water Framework Directive. Water stress has negative impacts on water-dependent economic sectors such as agriculture.

([11]) European Environment Agency, 8 June 2023.

The status of land use, land-use change, and forestry (LULUCF) in Czechia could be improved. The draft updated projections indicate that Czechia is likely to fall short of the 2030 ambition ([12]). The LULUCF sector in Czechia holds substantial importance for the country's greenhouse gas emissions profile, offering the potential to function as a net carbon sink and highlighting the need to step up climate action.

Tackling shortages of workers, skills mismatches and declining educational outcomes

Shortages of workers and skills mismatches remain a pressing challenge, hindering the competitiveness of the Czech economy. The job vacancy rate remains high (3.4% in Q4-2023) and well above the EU average (2.5% in Q4-2023), although it is declining. In particular, the rate of women who are working or looking for a job remains low (with an employment rate of 74.5%, against 88.7% for men in Q3-2023), linked to insufficient childcare services and suboptimal design of parental support.

The tax and benefit system dissuades parents from returning to work. Three-year parental leaves, high tax deductibles for non-working spouses and family benefits incentivising the lower-earning parent to take long leaves discourage women from working or looking for a job ([13]). The tax wedge (i.e. the taxation of earnings from labour) for second earners was above the EU average in 2022, and above the tax wedge for single people at the same wage level (see Annex 19). Despite the RRF and the cohesion policy funds, there is a lack of enforceable legal obligations and/or incentives for municipalities to ensure

([12]) European Commission staff working document Assessment of the draft updated National Energy and Climate Plan of Czechia, 2023.

([13]) https://idea.cerge-ei.cz/studies/2016-12-danovy-system-snizuje-motivaci-matek-s-mensimi-detmi-k-praci

childcare services' availability, even more so in response to demographic fluctuations.

Weak support for informal carers and insufficient incentives for later retirement exacerbate the shortage of workers. The supply of workers could also be increased by incentivising the activity of workers beyond the pension age, for example by lowering social contributions, as currently considered by government. Similarly, more than 100 000 informal carers report not being able to work full-time because of their caring duties. Improving social services (in particular community-based ones) would enable them to join the labour market.

The high inflow of Ukrainian refugees could ease labour market tightness. Czechia has received the EU's highest inflow of Ukrainian refugees per capita. About one third of the 350 000 Ukrainian refugees in Czechia are in employment ([14]). Still, more than 50% of them are in less qualified positions than was the case in Ukraine, with language being a clear barrier, and roughly 30% also quoting qualification recognition as a barrier to getting a better job ([15]). Besides ensuring affordable language courses, the situation could be improved by reforming the regulated professions ([16]).

While education outcomes have remained largely stable, the basic skills of disadvantaged pupils declined. According to the 2022 results of the Programme for International Student Assessment of the Organisation for Economic Co-operation and Development, the share of top-performing 15-year-olds is above the EU average in all three domains, but significant disparities exist by socio-economic status (Annex 15). Approximately one in four 15-year-olds do not meet the basic proficiency level in mathematics (25.5%), and the same is true for one in five in reading and science. Between 2018 and 2022, the proportion of underachieving students in mathematics increased among the socio-economically disadvantaged, while it remained stable among the advantaged, widening the socio-economic gap. In addition, the segregation of Roma children in schools increased between 2016 and 2021, despite dedicated reforms and resources (Annex 15).

A shortage of appropriately qualified teaching staff negatively influences student performance in mathematics. Czechia has the EU's highest score-point difference in students' mathematics performance linked to reported teacher shortages. In particular, inappropriately or poorly qualified teaching staff, reported by close to one third of school principals, has the strongest negative impact. According to expert views ([17]), equal access to quality education is also hindered by the fact that most schools are operated by small municipalities, who are not able to provide support to the pedagogical process in schools.

Participation in higher education is stalling and financial support for students is low. In 2022, 34.6% of adults between 25 and 34 years held a higher education diploma. This rate is one of the lowest in the EU (average: 36.5%; target: 45%), and is particularly low among men (26.6%). The number of students enrolling in higher education is decreasing. Among the contributing factors are low government support for students and limited possibilities for students to access or move between different secondary education pathways leading to higher studies, combined with the early streaming of students, which limits access to tertiary education (see Annex 15).

([14]) https://www.mpsv.cz/documents/20142/7095934/TZ_bilance_UA_23022024_final.pdf/2cd843dc-330b-e0a2-313e-da2a6f6cfc97

([15]) https://www.paqresearch.cz/post/uprchlici-posun-jazyk-prace-bydleni/

([16]) https://vlada.gov.cz/assets/ppov/NERV/aktuality/navrhy-NERV.pdf, provision 4.

([17]) 'Responsible founders – better schools', PAQ Research, 2024, https://www.paqresearch.cz/tema/odpovedni-zrizovatele-lepsi-skoly/.

Box 4:

The mid-term review of cohesion policy funds for Czechia

The mid-term review of cohesion policy funding is an opportunity to assess cohesion policy programmes and tackle emerging needs and challenges in EU Member States and their regions. Member States are reviewing each programme taking into account, among other things, the challenges identified in the European Semester, including in the 2024 country-specific recommendations. This review forms the basis for a proposal by the Member State for the definitive allocation of 15% of EU funding included in each programme.

Czechia has made progress in implementing cohesion policy programmes and the European Pillar of Social Rights, but challenges remain as outlined in this report, including in Annexes 14 and 17. In particular, Severozápad and, to a lesser extent, Moravskoslezsko are caught in a development trap. Against this background, it remains important to continue to implement the planned priorities, with particular attention to: (i) developing the administrative capacity of applicants from local communities, regions and SMEs to increase the absorption of EU funds and to improve partnership and ownership; (ii) supporting sustainable urban and regional transport and infrastructure for alternative fuels; (iii) investments in renewable energy sources, energy efficiency and circular economy; (iv) climate adaptation measures, with a focus on natural water retention measures; (v) improving the impact of measures aimed at the most disadvantaged groups, such as the Roma, with a particular focus on housing, ensuring fair access to education and services for children and indebtedness trap prevention; and (vi) fostering the integration of Ukrainian nationals fleeing Russia's war of aggression against Ukraine through, for instance, a more agile qualification recognition system, Czech language courses and housing support.

The potential for wider use of financial instruments and for combination of financial instruments with grants merits specific consideration in the preparation of the mid-term review. Taking into account Czechia's ambition to move up from the level of a moderate innovator, Czechia could benefit from the opportunities available under the Strategic Technologies for Europe Platform (STEP) ([18]) initiative in the areas of digital technologies and deep tech innovation, clean and resource-efficient technologies, and biotechnologies – where relevant in line with the national smart specialisation strategy – to support the transformation of industry.

([18]) Regulation (EU) 2024/795

KEY FINDINGS

With its wide policy scope and substantial financial envelope, Czechia's recovery and resilience plan (RRP) includes measures to address a series of structural challenges, in synergy with other EU funds, including cohesion policy funds, by:

- **Advancing the green transition** by supporting sustainable transport, renovating buildings and making them more energy efficient, investing in cleaner and more efficient energy sources and recycling infrastructure, and supporting biodiversity;
- **Facilitating the digital transition** by digitalising public administration and businesses, deploying digital technologies, and supporting digital skills education;
- **Supporting the business environment** by boosting the innovation capacity of domestic businesses, strengthening the connection with the public research sector, and improving access to finance for small to medium-sized enterprises; strengthening institutional resilience by improving the anti-corruption framework;
- **Addressing labour market challenges** by implementing new schooling curricula, promoting adult learning, and encouraging more women to work or look for a job by expanding childcare facilities' capacity;
- **Tackling social challenges** by investing in social housing, healthcare and long-term care, investing in infrastructure, and improving the excellence of research in medical sciences;

The implementation of Czechia's recovery and resilience plan is facing increasing challenges. Renewed efforts are key for a successful implementation of all the measures of Czechia's recovery and resilience plan by August 2026.

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

- **Ensuring the sustainability of government finances**, including the pension system, by addressing challenges linked to the ageing population, and by increasing revenue from recurrent property taxes;
- **Improving the business climate and the competitiveness of the economy** by strengthening the public administration capacity, encouraging investments in R&D and innovation, improving technology transfer from academia to businesses, supporting the creation of spin-offs and start-ups, ensuring a business-friendly regulatory environment, and by improving access to non-bank finance for businesses by fostering market financing via the capital markets and leveraging private financing with the support of the national development bank, and by wider use of financial instruments;
- **Easing the labour market** by addressing shortages of workers and increasing participation of women, older workers, Ukrainian refugees and informal carers, tackling skills mismatches, simplifying the recognition of foreign qualifications, increasing participation in higher education, and making the education system more inclusive and permeable as well as the teaching profession more attractive;
- **Strengthening social inclusion** by helping to increase the housing supply and addressing regional disparities in access to social services and essential infrastructure;

- **Accelerating the green transition**, in particular by: (i) continuing action to decarbonise the economy; (ii) reducing energy costs to support the competitiveness of industry, by speeding up deployment of renewable energy sources, modernising the power grid, increasing energy storage capacity, and improving energy efficiency; and (iii) promoting the uptake of circular business models.

ANNEXES

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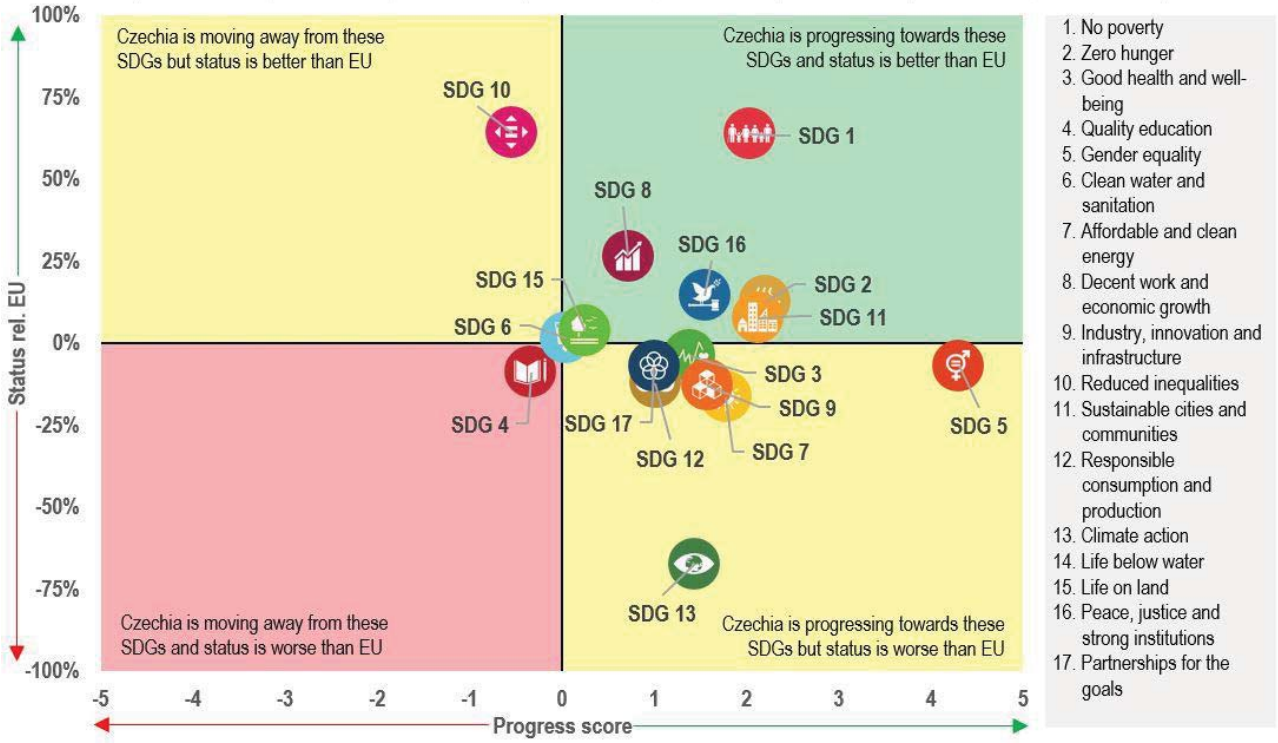
ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

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 and the environmental crisis, 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 the SDGs in an EU context.

While Czechia has improved on all of SDGs related to *environmental sustainability*, it is still lagging behind the EU average on SDG 13 (Climate action). Net greenhouse gas emissions are higher (SDG 13; 11.4 tonnes per capital in 2022) than the EU average (7.3 tonnes per capital in 2022), while the share of renewable energy in gross final energy consumption (18.2% in 2022) is still below the EU average (23% in 2022). The circular material use rate (SDG 12) improved, from 9.1% of material input for domestic use in 2017 to 11.9% of material input for domestic use in 2022. The average CO_2 emissions per km from new passenger cars (SDG 12) decreased, from 150.4 g Co_2 per km in 2017 to 137.7 g Co_2 in 2022, but remain above the EU average (109.8 g CO_2 in 2022). Energy productivity (SDG 12) improved slightly, from EUR 4.3 per kgoe in 2017 to EUR 4.7 per kgoe in 2022, but remains below the EU average (EUR 9.3 per kgoe in 2022). On a more positive note, the country is continuing to decarbonise its energy mix by increasing its share of renewable energy (SDG 7; from 14.8% in 2017 to 18.2% in 2022).

Czechia performs very well and is continuing to improve on a number of SDGs related to *fairness* (SDGs 1 and 10). At the same time,

Graph A1.1: **Progress towards the SDGs in Czechia**



For detailed datasets on the various SDGs, see the annual Eurostat report 'Sustainable development in the European Union'; for details on extensive country-specific data on the short-term progress of Member States: Key findings – Sustainable development indicators - Eurostat (europa.eu). A high status does not mean that a country is close to reaching a specific SDG, but signals that it is doing better than the EU on average. The progress score is an absolute measure based on the indicator trends over the past 5 years. The calculation does not take into account any target values as most EU policy targets are only valid for the aggregate EU level. Depending on data availability for each goal, not all 17 SDGs are shown for each country.

Source: Eurostat, latest update of 25 April 2024. Data refer mainly to the period 2017-2022 or 2018-2023. Data on SDGs may vary across the report and its annexes due to different cut-off dates.

there is a need for improvement on SDGs 3, 4 and 7, and for a strong focus on SDG 5 (Gender equality). Czechia performs particularly well on SDG 1 (No poverty) and SDG 10 (Reduced inequalities), with both significantly above the EU average (SDG 1; 63.9% and SDG 10: 64.3%, even if the latter figure is a decrease on the 2023 value of 71.5%). Czechia's positive stance on reducing poverty (SDG 1) is reflected in a number of indicators such as people at risk of poverty or social exclusion, the severe material and social deprivation rate, and the in-work at-risk-of-poverty rate, all of which significantly outperform the EU average. Czechia's share of the population unable to keep their homes adequately warm (SDG 7; 2.9% of the population in 2022) remains below the EU average (9.3% of the population in 2022). However, there is some room for improvement, mainly on SDG 5 (Gender equality) as regards employment and leadership positions. Nevertheless, there have been some positive trends in closing the gender gap (SDG 5; from 21.1% of average gross hourly earnings of men in 2017 to 17.9% in 2022). This remains above the EU average of 12.7% in 2022.

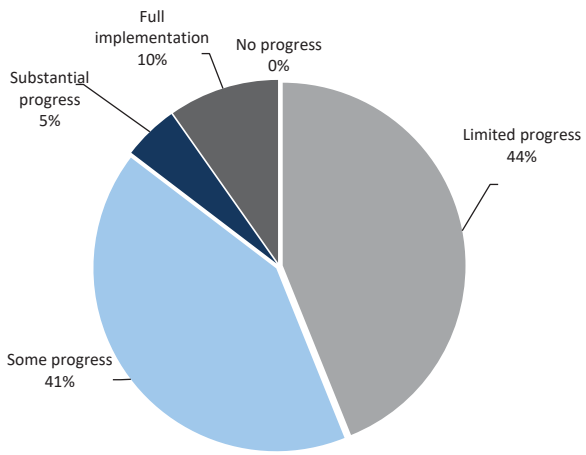
Czechia performs particularly well on SDG 8 (Decent work and economic growth), although it still needs to catch up with the EU average on other SDGs related to *productivity* (SDGs 4 and 9). Czechia's long-term unemployment rate (SDG 8) was 0.8% in 2023, well below the EU average (2.1% in 2023). Czechia also recorded a change in its employment rate (SDG 8) from 79.9% of the population aged 20 to 64 in 2018 to 81.7% in 2023, above the EU average of 75.3%. Another positive development relates to the percentage of investment share of GDP, which increased from 24.9% in 2017 to 26.8% in 2022, also above the EU average of 22.7% in 2023. Additional efforts should be made on research and innovation, as evidenced by the indicator on patents (SDG 9; 22 per million inhabitants in 2023), which is well below the EU average (153 per million inhabitants in 2023). While Czechia is performing better than the EU average on early leavers from education and training (SDG 4; 6.4% of the population aged 18 to 24 in 2023, compared to 9.5%), it needs to catch up on tertiary education and digital skills.

Czechia continues to improve on all SDGs related to *macroeconomic stability* (SDGs 8, 16, 17) but still needs to catch up with the EU average on certain indicators related to SDG 16 (Peace, justice and strong institutions) and SDG 17 (Partnerships for the goals). The Czech government spends less general government total expenditure on law courts than the EU average. (SDG 16; EUR 76.8 per capita in 2022, against an EU average of EUR 113.7). Czechia maintains very positive macroeconomic standards, reflected mainly in low general government gross debt (SDG 17; 44.0% in 2023), which is significantly below the EU average (81.7% in 2023). While Czechia increased its official development assistance (SDG 17) from 0.15% of gross national income (GNI) in 2017 to 0.38% of GNI in 2022, it remains below the EU average of 0.58%. Czechia could do more on the share of environmental taxes in total tax revenues (SDG 17), which decreased in recent years from 5.7% of total tax revenues in 2017 to 4.2% in 2022.

As the SDGs form an overarching framework, any links to relevant SDGs are either explained or depicted with icons in the other annexes.

The Commission has assessed the 2019-2023 country-specific recommendations (CSRs) ([19]) addressed to Czechia as part of the European Semester. These recommendations concern a wide range of policy areas that are related to 14 of the 17 Sustainable Development Goals (SDGs) (see Annexes 1 and 3). The assessment considers the policy action taken by Czechia to date ([20]) and the commitments in its recovery and resilience plan (RRP) ([21]). At this stage of RRP implementation, 56% of the CSRs focusing on structural issues from 2019-2023 have recorded at least 'some progress', while 44% recorded 'limited progress' (see Graph A2.1). As the RRP is implemented further, considerable progress in addressing structural CSRs is expected in the coming years.

Graph A2.1: **Czechia's progress on the 2019-2023 CSRs (2024 European Semester)**



Source: European Commission.

([19]) 2023 CSRs: EUR-Lex - 32023H0901(03) - EN - EUR-Lex (europa.eu)

2022 CSRs: EUR-Lex - 32022H0901(03) - EN - EUR-Lex (europa.eu)

2021 CSRs: EUR-Lex - 32021H0729(03) - EN - EUR-Lex (europa.eu)

2020 CSRs: EUR-Lex - 32020H0826(03) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32019H0905(03) - EN - EUR-Lex (europa.eu)

([20]) Including policy action reported in the national reform programme and in Recovery and Resilience Facility (RRF) reporting (twice a year reporting on progress in implementing milestones and targets and resulting from the payment requests assessment).

([21]) Member States were asked to effectively address in their RRPs all or a significant subset of the relevant country-specific recommendations issued by the Council. The CSR assessment presented here considers the degree of implementation of the measures included in the RRP and of those carried out outside of the RRP at the time of assessment. Measures laid down in the Annex of the adopted Council Implementing Decision on approving the assessment of the RRP, which have not yet been adopted or implemented but considered 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 A2.1: **Summary table on 2019-2023 CSRs**

Table 2.1: Summary table on 2019-2023 CSRs			
Czechia	**Assessment in May 2024***	**RRP coverage of CSRs until 2026****	**Revelant SDGs**
2019 CSR 1	**Limited Progress**		
Improve long-term fiscal sustainability of the pension and health-care systems.	Limited Progress		SDG 3, 8, 16
Adopt pending anti-corruption measures.	Some Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2023, 2024 and 2026.	SDG 16
2019 CSR 2	**Some Progress**		
Foster the employment of women with young children, including by improving access to affordable childcare, and of disadvantaged groups.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024 and 2025.	SDG 4, 5, 8, 10
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 being implemented as of 2020, 2022 and planned as of 2025.	SDG 4, 8, 10
2019 CSR 3	**Some Progress**		
Focus investment-related economic policy on transport, notably on its sustainability	Some Progress	Relevant RRP measures being implemented as of 2022 and 2025.	SDG 10, 11
, digital infrastructure	Some Progress	Relevant RRP measures being implemented as of 2021, 2022 and planned as of 2025.	SDG 9, 10, 11
, and low carbon and energy transition, including energy efficiency , taking into account regional disparities.	Limited Progress	Relevant measures being implemented as of 2021, 2022 and planned as of 2024 and 2026.	SDG 7, 9, 10, 11, 13
Reduce the administrative burden on investment	Limited Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2023 and 2026.	SDG 8, 9
and support more quality-based competition in public procurement.	Limited Progress		SDG 9
Remove the barriers hampering the development of a fully functioning innovation ecosystem.	Some Progress	Relevant RRP measures being implemented as of 2022 and planned as of 2025.	SDG 9
2020 CSR 1	**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	SDG 8, 16
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 being implemented as of 2021, 2022 and planned as of 2024.	SDG 3
2020 CSR 2	**Some Progress**		
Support employment through active labour market policies,	Some Progress	Relevant RRP measures being implemented as for 2022 and planned as of 2025.	SDG 8
the provision of skills, including digital skills, and access to digital learning.	Some Progress	Relevant RRP measures being implemented as of 2020, 2021 and planned as of 2024 and 2025.	SDG 4
2020 CSR 3	**Some Progress**		
Support small and medium-sized enterprises by making greater use of financial instruments to ensure liquidity support,	Some Progress	Relevant RRP measures being implemented as of 2022.	SDG 8, 9
reducing the administrative burden and improving e-government.	Some Progress	Relevant RRP measures being implemented as of 2021, 2022 and planned as of 2023.	SDG 8, 9, 16
Front-load mature public investment projects and	Some Progress		SDG 8, 16
promote private investment to foster the economic recovery.	Some Progress	Relevant RRP measures planned as of 2023.	SDG 8, 9
Focus investment on the green and digital transition, in particular on high-capacity digital infrastructure and technologies,	Limited Progress	Relevant RRP measures being implemented as of 2021, 2022 and planned as of 2025.	SDG 9
clean and efficient production and use of energy,	Limited Progress	Relevant measures being implemented as of 2021, 2022 and planned as of 2024 and 2026.	SDG 7, 9, 13
and sustainable transport infrastructure, including in the coal regions.	Limited Progress	Relevant RRP measures being implemented as of 2022 and 2025.	SDG 10, 11
Ensure access to finance for innovative firms and improve public-private cooperation in research and development.	Limited Progress	Relevant RRP measures being implemented as of 2022 and planned as of 2025.	SDG 8, 9
2021 CSR 1	**Some Progress**		
In 2022, maintain a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Not relevant anymore	Not applicable	SDG 8, 16
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Not relevant anymore	Not applicable	SDG 8, 16
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.	Not relevant anymore	Not applicable	SDG 8, 16
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.	Not relevant anymore	Not applicable	SDG 8, 16

(Continued on the next page)

Table (continued)

2022 CSR 1	**Substantial Progress**		
In 2023, ensure that the growth of nationally financed primary current expenditure is in line with an overall neutral policy stance, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. Stand ready to adjust current spending to the evolving situation.	Substantial Progress	Not applicable	SDG 8, 16
Expand public investment for the green and digital transitions, and for energy security taking into account the REPowerEU initiative, including by making use of the Recovery and Resilience Facility and other Union funds.	Substantial Progress	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions.	Full Implementation	Not applicable	SDG 8, 16
Take measures to ensure the long-term fiscal sustainability of public finances, including the sustainability of the pension system.	Limited Progress		SDG 8
2022 CSR 2			
Proceed with the implementation of its recovery and resilience plan, in line with the milestones and targets included in the Council Implementing Decision of 8 September 2021.	RRP implementation is monitored by assessing RRP payment requests and analysing reports published twice a year on the achievement of the milestones and targets. These are to be reflected in the country reports.		
Swiftly finalise the negotiations with the Commission of the 2021-2027 cohesion policy programming documents with a view to starting their implementation.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
2022 CSR 3	**Limited Progress**		
Strengthen the provision of social and affordable housing, including by adopting a specific legislative framework for social housing and improved coordination between different public bodies.	Limited Progress		SDG 1, 2, 10, 16
2022 CSR 4	**Limited Progress**		
Reduce overall reliance on fossil fuels and diversify imports of fossil fuel.	Some Progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 7, 9, 13
Accelerate the deployment of renewables, streamline permit procedures and make grid access easier.	Limited Progress	Relevant RRP measures planned as of 2023 and 2026.	SDG 7, 8, 9, 13
Increase the energy efficiency of district heating systems and of the building stock by incentivising deep renovations and renewable heat sources.	Limited Progress	Relevant RRP measures planned as of 2023 and 2024.	SDG 7
2023 CSR 1	**Substantial Progress**		
Wind down the emergency energy support measures in force, using the related savings to reduce the government deficit, as soon as possible in 2023 and 2024. Should renewed energy price increases necessitate new or continued support measures, ensure that these are targeted at protecting vulnerable households and firms, fiscally affordable and preserve incentives for energy savings.	Full Implementation		SDG 8, 16
Ensure prudent fiscal policy, in particular by limiting the nominal increase in nationally financed net primary expenditure in 2024 to not more than 6.0%.	Full Implementation		SDG 8, 16
Preserve nationally financed public investment and ensure the effective absorption of RRF grants and other EU funds, in particular to foster the green and digital transitions.	Some Progress		SDG 8, 16
For the period beyond 2024, continue to pursue a medium-term fiscal strategy of gradual and sustainable consolidation, combined with investments and reforms conducive to higher sustainable growth, to achieve a prudent medium-term fiscal position.	Full Implementation		SDG 8
Take measures to ensure the long-term fiscal sustainability of public finances, including the sustainability of the pension system.	Limited Progress		SDG 8, 16
2023 CSR 2			
Accelerate the implementation of its recovery and resilience plan, also by ensuring an adequate administrative capacity, and swiftly finalise the addendum, including the REPowerEU chapter, with a view to rapidly starting its implementation. Proceed with the speedy implementation of cohesion policy programmes, in close complementarity and synergy with the recovery and resilience plan.	RRP implementation is monitored through the assessment of RRP payment requests and analysis of the bi-annual reporting on the achievement of the milestones and targets, to be reflected in the country reports. Progress with the cohesion policy is monitored in the context of the Cohesion Policy of the European Union.		
2023 CSR 3	**Limited Progress**		
Strengthen the provision of social and affordable housing, including by adopting a specific legislative framework, improving coordination between different public bodies, and incentivising the construction of new housing units as well as the refurbishment of existing ones.	Limited Progress		SDG 1, 2, 10, 16
2023 CSR 4	**Limited Progress**		
Reduce reliance on fossil fuels.	Some Progress		SDG 7, 9, 13
Increase the deployment of renewables with additional investments in electricity grids and direct deployment of renewable capacity.	Limited Progress		SDG 7, 9, 13
Streamline permitting procedures for renewables and make the grid fit to accommodate access to renewables through additional reforms, removing restrictions for small-scale renewables and setting up a one-stop shop, boosting grid flexibility and creating conducive conditions for energy communities.	Some Progress		SDG 7, 8, 9, 13
Increase the energy efficiency of district heating systems and of the building stock by incentivising deep renovations and renewable heat sources, easing administrative access to subsidies for both households and industry, and capacity building and skills in public authorities.	Some Progress		SDG 7, 8, 9, 16
Promote the uptake of zero-emission vehicles and boost the availability of high-capacity charging and refuelling infrastructure through new reforms to create enabling conditions for and remove existing barriers to the deployment of vehicles and infrastructure.	Limited Progress		SDG 11
Step up policy efforts aimed at the provision and acquisition of skills and competences needed for the green transition.	Limited Progress		SDG 4

Note:

* See footnote ([21])

** RRP measures included in this table contribute to the implementation of CSRs. Nevertheless, additional measures outside the RRP may be necessary to fully implement CSRs and address their underlying challenges. Measures indicated as 'being implemented' are only those included in the RRF payment requests submitted and positively assessed by the European Commission.

Source: European Commission.

This Annex provides a snapshot of Czechia's implementation of its recovery and resilience plan (RRP), past the mid-way point of the Recovery and Resilience Facility's (RRF) lifetime. The RRF has proven central to the EU's recovery from the COVID-19 pandemic, helping speed up the twin green and digital transition, while adapting to geopolitical and economic developments, and strengthening resilience against future shocks. The RRF is also helping implement the UN Sustainable Development Goals and address the country-specific recommendations (see Annex 2).

The RRP paves the way for disbursing up to EUR 8.4 billion in grants and EUR 818 million in loans under the RRF over the 2021-2026 period, representing 3% of Czechia's GDP ([22]). As of mid-May 2024, EUR 2.69 billion of grants has been disbursed to Czechia under the RRF.

Czechia still has EUR 6.5 billion available in grants and loans from the RRF. This will be disbursed after the assessment of future fulfilment of the remaining 276 milestones and targets ([23]) included in the Council Implementing Decision ([24]) (CID), ahead of the 2026 deadline established for the Facility.

Czechia's progress in implementing its plan is recorded in the Recovery and Resilience Scoreboard ([25]). The scoreboard gives an overview of the progress made in implementing the RRF as a whole. Graphs A3.1 and A3.2 show the current state of play as reflected on the Scoreboard.

Czechia's RRP includes a REPowerEU chapter to phase out its dependency on Russian fossil fuels, diversify its energy supplies, and produce more clean energy in the coming years. To kick-start the REPowerEU chapter's implementation, EUR 147.09 million was disbursed as pre-financing on 21 December 2023. This helped launch relevant reforms like facilitating the Renovation Wave by supporting and advising households, businesses and public sector entities in the renovation of their buildings.

Table A3.1: **Key facts of the Czech RRP**

Initial plan CID adoption date	8 September 2021
Scope	Revised plan with REPowerEU chapter
Last major revision	17 October 2023
Total allocation	EUR 8.4 billion in grants and EUR 0.8 billion in loans (3% of 2023 GDP)
Investments and reforms	105 investments and 58 reforms
Total number of milestones and targets	341
Fulfilled milestones and targets	65 (19.1% of total)

Source: RRF Scoreboard

The plan has a strong focus on the green transition, dedicating 42.9% of the available funds to measures that support climate objectives and 22.8% of its total allocation to support the digital transition. It also retains a strong social dimension with social protection measures, especially related to increasing the resilience of healthcare and social services, be it through building new hospitals and social care facilities, acquiring new medical equipment, strengthening cancer screening programmes or rolling out e-Health.

With two payment requests completed, Czechia's implementation of its RRP is underway. However, timely completion requires increased efforts. The Commission gave a positive assessment of Czechia's first payment request, taking into account the opinion of the Economic and Financial Committee. This led to EUR 928 million being disbursed in financial support on 22 March 2023 ([26]). The related 37 milestones and targets covered reforms in the areas of school curricula to promote digital literacy

([22]) GDP information is based on 2023 data. Source: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html?lang=en

([23]) A milestone or target is satisfactorily fulfilled once a Member State has provided evidence to the Commission that it has reached the milestone or target and the Commission has assessed it positively in an implementing decision.

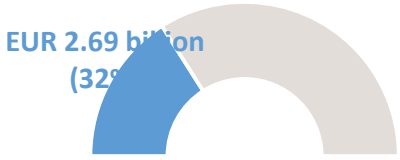
([24]) https://data.consilium.europa.eu/doc/document/ST-11047-2021-ADD-1/en/pdf

([25]) https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

([26]) When requested payments are disbursed, the pre-financing is cleared proportionally. The net amounts are quoted here.

and digital skills, of eHealth, and of the country's audit and control system for the implementation of the RRF, as well as major investments for the reconstruction of three railway bridges and 45 safer railway level crossings, as well as digital tools for education.

Graph A3.1: **Total grants disbursed under the RRF**



Total allocation: EUR 8.409 billion

Note: This graph displays the amount of grants, including pre-financing, disbursed so far under the RRF. Grants are non-repayable financial contributions. The total amount of grants given to each Member State is determined by an allocation key and the total estimated cost of the respective RRP.
Source: RRF Scoreboard

The most recent payment request, which the Commission positively assessed on 19 February 2024, has led to the disbursement of EUR 702 million on 2 April 2024. The disbursement reflected the positive assessment of 28 milestones and targets covering building high-capacity Internet networks, sustainable mobility and e-administration.

Graph A3.2: **Total loans disbursed under the RRF**

Total allocation: EUR 0.818 billion

Source: RRF Scoreboard

As of 15 May 2024, Czechia is working towards its third payment request. Table A3.2 highlights some relevant measures achieved so far, and some that will be implemented before 2026 to keep making Czechia's economy greener, more digital, inclusive, and resilient.

Table A3.2: **Measures in Czechia's RRP**

Reforms and investments implemented
• Anti-Corruption Reforms • National Plan to Strengthen Oncological Prevention and Care • Digital Transformation of Enterprises
Upcoming reforms and investments
• Facilities and housing for children at risk • National and Regional waste management plan • Creation of European and national Digital Innovation Hubs

Source: FENIX

EU funding instruments provide considerable resources for recovery and growth to the EU Member States. In addition to the EUR 9.2 billion of Recovery and Resilience Facility (RRF) funding described in Annex 3, EU cohesion policy funds ([27]) provide EUR 21.1 billion to Czechia for the 2021-2027 period ([28]). Support from these two instruments combined represents around 9.90% of the country's 2023 GDP, compared to an EU average of 5.38% of GDP ([29]). Cohesion policy supports regional development, economic, social and territorial convergence and competitiveness through long-term investment in line with EU priorities and with national and regional strategies.

During the 2014-2020 programming period, cohesion policy funds boosted Czechia's competitiveness, with tangible achievements notably in research and innovation, reduction of environmental risks, social cohesion, and transport. By the end of the eligibility period in December 2023, 2014-2020 cohesion policy funds ([30]) had made EUR 22.7 billion available to Czechia ([31]), of which EUR 13.9 billion has been disbursed since March 2020, when the COVID-19 pandemic began ([32]). The expansion of the transport network (with 222 km of newly built motorways and backbone roads and 378 km of modernised railway lines) has created conditions for long-term development. Cohesion policy funds have also made a significant contribution to reducing environmental risks, in particular by removing old environmental burdens, strengthening the adaptation of urbanised areas to climate change, and strengthening flood protection. 874 municipalities now have digital flood risk management plans in place. Over the entire programming period, cohesion policy funds supported 14 000 businesses and enabled 2 500 businesses to cooperate with research institutions, strengthening Czechia's research capacity. In addition, the European Social Fund (ESF) supported 112 newly established community centres and 297 461 after-school activities that help people develop new skills. Furthermore, 4 581 pupils with special educational needs received targeted support. In the field of employment, EU funding helped create 9 719 new jobs in science and research and 6 131 jobs for people from marginalised groups. Czechia is one of the biggest recipients of displaced people from Ukraine in the EU, with 370 000 people receiving temporary protection in Czechia. Their temporary resettlement was supported by EUR 63 million of EU funding.

In the current programming period (2021-2027), cohesion policy will provide a further boost to Czechia's competitiveness, to the green transition and to social cohesion, improving the living and working conditions of Czechia's people. In 2021-2027, the European Regional Development Fund and Cohesion Fund will support sustainable transport in Czechia by developing clean urban and suburban public transport and charging infrastructure for clean vehicles. Moreover, support from the funds will help Czechia to improve its response to climate change, increase the share of renewable energy sources, reduce public buildings' energy consumption and greenhouse gas emissions, and replace fossil fuels with renewables. Cohesion policy will enable SMEs to adapt to the challenges of the digital era, and further support the deployment of digital solutions in businesses. These measures will help people overcome the challenges of the green and digital transition. Half of the country's Just Transition Fund (JTF) allocation is planned to be implemented via integrated projects. Projects will be set up in various areas (renewables, circular economy, education, support to research and development) and should have a major impact on the transition to climate neutrality in the three JTF regions. As part of this, over 2 221 SMEs will receive support through grants and financial instruments. The JTF will also invest in research and innovation equipment, creating 455 research jobs. Furthermore, JTF investment will play an important role in the transformation of the former

([27]) In 2021-2027, cohesion policy funds include the Cohesion Fund, the European Regional Development Fund, the European Social Fund Plus and the Just Transition Fund.

([28]) European territorial cooperation (ETC) programmes are excluded from the figure. In 2021-2027, the total investment, including national financing, amounts to EUR 26.7 billion.

([29]) RRF funding includes both grants and loans, where applicable. The EU average is calculated for cohesion policy funds excluding ETC programmes. GDP figures are based on Eurostat data for 2022.

([30]) In 2014-2020, cohesion policy funds included the Cohesion Fund, the European Regional Development Fund, the European Social Fund and the Youth Employment Initiative. REACT-EU allocations are included but ETC programmes are excluded.

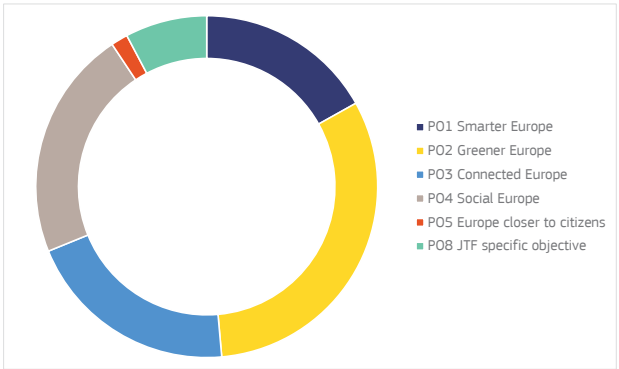
([31]) In 2014-2020, the total investment, including national financing, amounted to EUR 30.0 billion.

([32]) Cut-off date: 14 May 2024.

industrial brownfield sites. The European Social Fund Plus (ESF+) will invest EUR 367 million to improve access to employment for 92 000 people – including long-term unemployed and young people – and a further EUR 180 million to help workers, businesses and entrepreneurs adapt to change. With this work, cohesion policy substantially contributes to achieving the UN Sustainable Development Goals (SDGs) in Czechia, in particular SDG 9 (Industry, innovation, infrastructure), SDG 7 (Affordable and clean energy) and SDG 8 (Decent work and economic growth).

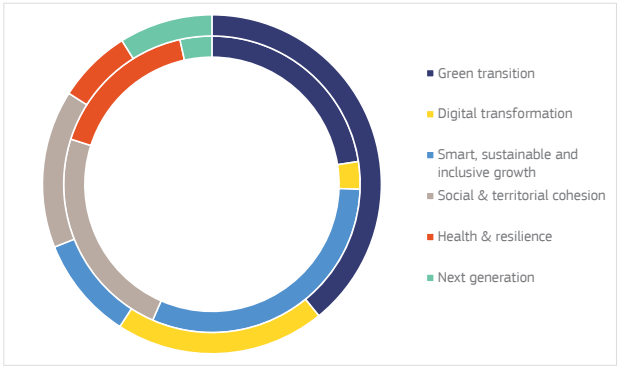
Through combined action, cohesion policy and the recovery and resilience plan (RRP) have a mutually reinforcing impact in Czechia. For instance, in the 2021-2027 programming period, cohesion policy funds finance the installation of smart elements and smart metering in energy networks, the construction and modernisation of distribution networks, and the introduction of management systems for energy demand in Czechia. The Czech RRP includes a reform that aims to: (i) improve the use of available electricity grid capacity; (ii) facilitate the connection of renewable energy sources to the grid and self-consumption; and (iii) set a comprehensive regulatory framework for flexibility services such as energy storage, demand response and aggregation. The RRP also includes investments to accommodate the expected increase in demand for integrating intermittent renewables into the distribution grid and setting up an electricity data centre. The contribution of cohesion policy and RRP funding by policy objective is illustrated by Graphs A4.1 and A4.2.

Graph A4.1: **Distribution of cohesion policy funding across policy objectives in Czechia**



Source: European Commission

Graph A4.2: **Distribution of RRF funding by pillar in Czechia**



(1) Each RRP measure helps achieve the aims of two of the six policy pillars of the RRF. The primary contribution is shown in the outer circle while the secondary contribution is shown in the inner circle. Each contribution represents 100% of the RRF funds. Therefore, the total contribution to all pillars displayed on this chart amounts to 200% of the RRF funds allocated to Czechia.

Source: European Commission

The Technical Support Instrument (TSI) helps Czechia invest in the effectiveness of public administration and create a better enabling environment for EU and national investment. The TSI and its predecessor Structural Reform Support Programme have funded projects in Czechia to design and implement growth-enhancing reforms since 2017. The support provided in 2023 included action to implement a housing reform, develop a framework for the monitoring and evaluation of early childhood education and care, strengthen the efficiency of the judicial system, and implement a performance budgeting framework. The TSI also helps Czechia implement the methodology for applying the 'do no significant harm' principle to projects supported by national funds as well as to the green reforms and investments under its RRP.

Czechia also receives funding from several other EU instruments, including those listed in Table A4.1.

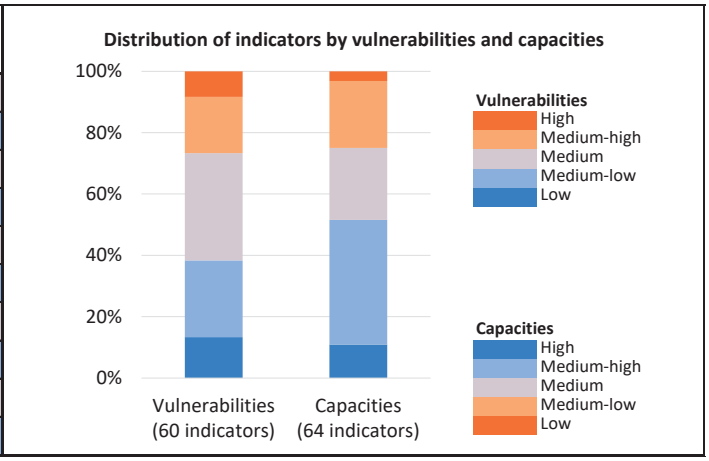
Table A4.1: **Support from EU instruments in Czechia**

EU grants			
	Amount 2014-2020 (EUR million)		Amount 2021-2027 (EUR million)
Cohesion policy	22 676.2		21 054.1
RRF grants (1)	-		8 409.2
Public sector loan facility (grant component) (2)	-		124.5
Common agricultural policy (3)	10 900.0		5 647.0
EMFF/EMFAF (4)	31.1		30
Connecting Europe Facility (5)	1 150.2		1 043.7
Horizon 2020 / Horizon Europe (6)	512.6		357.9
LIFE programme (7)	40.7		64.8
EU guarantees			
	EU Guarantee (EUR million)		Volume of operations (EUR million)
European Fund for Strategic Investment 2015-2020 (8)	299.0		909.4
InvestEU 2021-2027 (9)	47.5		178.9
EU loans			
	Period	Total amount available (EUR million)	Disbursed amount (EUR million)
SURE (10)	2020-2022	4 500.0	4 500.0
RRF	2021-2026	818	0

(1) RRF implementation period is 2021-2026.
(2) The public sector loan facility's programming period is 2021-2025 and the amount reflects the national share in its grant component reserved until the end of the period.
(3) Common agricultural policy programming periods are 2014-2022 and 2023-2027.
(4) EMFF – European Maritime and Fisheries Fund, EMFAF – European Maritime, Fisheries and Aquaculture Fund.
(5) Data on the Connecting Europe Facility covers transport and energy and has a cut-off date of 15 May 2024.
(6) Data on Horizon Europe (2021-2027) has a cut-off date of 13 May 2024.
(7) 2021-2027 data on the LIFE programme has a cut-off date of 15 May 2024.
(8) The amount of the EU guarantee signed under the EFSI Infrastructure and Innovation Window was derived based on the signed amount of the operations and the average internal multiplier, as reported by the EIB (cut-off date is 31 December 2023).
(9) The amount of the EU guarantee and of the volume of operations signed under InvestEU includes the EU compartment as well as the Member State compartments (cut-off date is 31 December 2023).
(10) SURE - European instrument for temporary support to mitigate unemployment risks in an emergency.
Source: European Commission

Table A5.1: **Resilience indices across dimensions for Czechia and the EU-27**

Dimension		CZ 2023 RDB	CZ 2024 RDB	EU-27 2024 RDB
Overall resilience	Vulnerabilities			
	Capacities			
Social and economic	Vulnerabilities			
	Capacities			
Green	Vulnerabilities			
	Capacities			
Digital	Vulnerabilities			
	Capacities			
Geopolitical	Vulnerabilities			
	Capacities			



(1) The synthetic indices aggregate the relative resilience situation of countries across all considered indicators. For an indicator, each country's relative situation in the latest available year is compared with the collection of values of that indicator for all Member States and all years in the reference period.
Source: Resilience Dashboards - version spring 2024, data up to 2022

This Annex uses the Commission's resilience dashboards (RDB) ([33]) to show Czechia's relative resilience capacities and vulnerabilities ([34]) that may be of relevance for societal, economic, digital, and green transformations, and for dealing with future shocks and geopolitical challenges. ([35])

According to the set of resilience indicators in the RDB, Czechia has medium-high overall capacities, which remained stable from last year and are similar to the EU average. The country also has **medium vulnerabilities**, increasing slightly from the 2023 RDB, but in line with the EU average in overall resilience. The distribution of indicators by vulnerabilities and capacities confirms this assessment, with over 70% of indicators showing at least medium capacities or at most medium vulnerabilities, and only under 10% of indicators in the critical range of high vulnerabilities and low capacities.

In the social and economic dimension, Czechia maintained its medium-low vulnerabilities and medium-high capacities. Czechia's employment in energy-intensive sectors and low share of children under 3 years in formal childcare are critical challenges for its social and economic resilience.

In the green dimension, Czechia has stable medium vulnerabilities and stable medium-high capacities, in line with the EU average. Despite its stable green vulnerabilities, Czechia's GHG emissions and raw materials consumption have both increased.

In the digital dimension, Czechia scores medium on digital vulnerabilities and capacities. The significant gender gap among ICT specialists continues to be a major vulnerability in Czechia. On capacities, there are improvements in e-health, use of social networks, e-tools in the judicial system and the collaborative economy but fewer young people are participating in online learning activities.

Finally, Czechia's geopolitical capacities have improved, thanks for instance to an increase in armed forces staff and greater trade openness towards extra-EU countries. Geopolitical vulnerabilities have increased to

([33]) https://ec.europa.eu/info/strategy/strategic planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en
Resilience is defined as the ability not only to withstand and cope with challenges but also to undergo transitions, in a sustainable, fair and democratic manner. 2020 Strategic Foresight Report: *Charting the course towards a more resilient Europe* (COM(2020) 493).

([34]) Vulnerabilities describe features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder the achievement of long-term strategic goals, while capacities refer to enablers or abilities to cope with crises and structural changes and to manage the transitions.

([35]) This Annex is linked to Annex 1 on SDGs, Annex 6 on the green deal, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource productivity, efficiency and circularity, Annex 10 on the digital transition and Annex 14 on the European pillar of social rights.

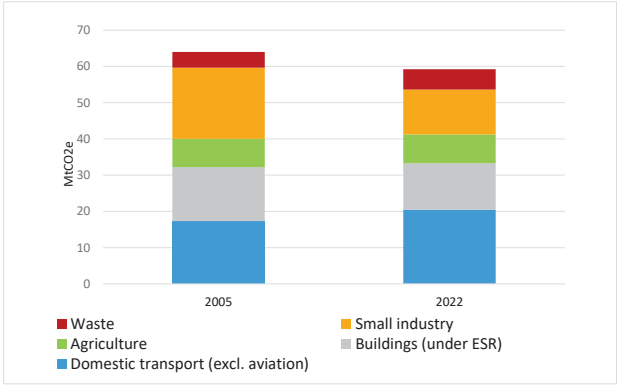
medium, but are on par with the EU average. The concentration of import partners from outside the EU is the highest among the member states and creates the biggest challenge.

Czechia has made progress in the green transition, with more action needed, for example to specify the funding framework for the climate and energy transition and circular economy. This Annex provides a snapshot of the climate, energy and environmental aspects of the transition in Czechia ([36]).

Czechia's draft updated national energy and climate plan (NECP) lacks key information on investment needs and sources of funding to achieve its 2030 climate and energy targets. Czechia has not identified the investment needs to implement the planned policies and measures under the five dimensions of the Energy Union. It lacks a clear overview of the main sources of financing, and the funding sources are not linked to planned policies and measures. It lacks an overview of budgetary information on policies and measures, which means it is not possible to identify potential funding gaps ([37]).

Czechia is projected to reach its 2030 effort sharing target, provided it adopts and implements the additional measures planned **([38]).** Czechia's 2022 greenhouse gas emissions from these sectors are expected to come in at 8.9% below 2005 levels. Current policies are projected to reduce emissions in the effort sharing sectors by 16.9% from 2005 levels by 2030. The additional policies included in Czechia's draft updated NECP are projected to reduce these emissions by 33.2% from 2005 levels. This results in reductions of 7.2 percentage points over and above Czechia's effort sharing target to achieve a 26% reduction ([39]).

Graph A6.1: **Greenhouse gas emissions from the effort sharing sectors in Mt CO2eq, 2005-2022**



Source: European Environment Agency

There is scope for increasing Czechia's target for renewable energy in its final updated NECP ([40]). Czechia's renewable energy contribution set in its draft updated NECP, 30% by 2030, is below the required contribution of 33%. Its energy efficiency contribution of 29.19 Mtoe in primary energy consumption and 20.2 Mtoe in final energy consumption for 2030 set in the draft updated NECP reflects the EU target of 11.7% in the Energy Efficiency Directive.

The transition to sustainable transport still hasn't fully gained ground in Czechia ([41]). At 0.2%, the share of battery electric vehicles in Czechia's passenger car fleet is increasing only slowly. The rate of installing publicly accessible charging infrastructure also remains slow, with

([36]) This Annex is complemented by Annex 7 on energy transition and competitiveness, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource efficiency, circularity, and productivity, and relevant topics in other annexes to this country report.

([37]) See the Commission's (2023) assessment of the draft national energy and climate plan of Czechia.

([38]) The national greenhouse gas emission reduction target is laid down out in Regulation (EU) 2023/857 (the Effort Sharing Regulation). The aim is to align action in the sectors concerned with the objective to reach the EU-level economy-wide target of greenhouse gas reductions of at least 55% compared to 1990 levels. The target also applies to the sectors outside the current EU Emissions Trading System, notably buildings (heating and cooling), road transport, agriculture, waste and small industry (known as the effort sharing sectors).

([39]) The effort sharing emissions for 2022 are based on approximated inventory data. The final data will be compiled in 2027 after a comprehensive review. Projections on the impact of current policies ('with existing measures', WEM) and additional policies ('with additional measures', WAM) as per Czechia's draft updated NECP.

([40]) The EU target set out in the revised Renewable Energy Directive is to have 42.5% of gross final energy consumption coming from renewable energy sources by 2030, with the aspiration to reach 45%. The formula in Annex I to Directive (EU) 2023/1791 sets the indicative national contribution for Czechia at 28.8 Mtoe for primary energy consumption and 20.2 Mtoe for final energy consumption. See the Commission Recommendation of 18.12.2023 Czechia

([41]) Unless otherwise indicated, data in this section refer to 2021. See European Commission, 2023, EU transport in figures, transport.ec.europa.eu.

some 4 500 publicly accessible charging points in 2023 (one for every five e-vehicles, against the EU average of 1:10). In Czechia, 82% of distances travelled are by passenger car, only slightly below the EU average of 85%. Three quarters of freight transport is transported by road. 34% of Czechia's rail network is electrified (against the EU average of 56%).

Czechia's action to increase carbon removals from the atmosphere through its land use sector is projected to undershoot its 2030 target for the land use, land-use change and forestry (LULUCF) sector. Czechia's forests have been releasing rising volumes of greenhouse gas since 2018. To meet its 2030 LULUCF target, additional carbon removals of 827 kt CO2eq are needed ([42]). The latest projections ([43]) for 2030 indicate that Czechia's efforts may not be sufficient, and it is likely to miss the target.

Climate change affects many sectors in Czechia, and a particular challenge is to improve the status of its water bodies. The effects of conventional agriculture and forestry on soil quality and other factors exacerbate the impact of intensifying droughts, floods and land erosion from wind and torrential rain. The risk of floods has significantly increased, in particular by heavy rainfall combined with low water retention in soils, both in terms of the number of towns exposed and the expected damage ([44]). Czechia ranked 4th (from highest to lowest score) on the water exploitation index plus (WEI+), reaching 12.07% in 2019. The worst seasonal water scarcity conditions reached 19.5% in Q3 of 2019. Between 2000 and 2020, on average, 4.5% of land in Czechia was affected by droughts. This rose to 27.1% in 2022. Croplands are generally the ecosystem most damaged by droughts in Czechia. The Czech economy lags behind the EU average in terms of water productivity ([45]), with EUR 195 generated per cubic metre of water abstracted. Based on reporting in the 2nd river basin management plan, only 19% of all surface water bodies reached at least a good ecological status and 68% reached a good chemical status.

Despite achieving an overall improvement to air quality and continuing to reduce air pollution, air quality in Czechia remains a cause for concern. The national scheme for individual households to change boilers, supported by EU funds, has been running since 2015. Still, domestic solid fuel combustion remains the main source of air pollution. Czechia recorded 822 years of life lost for every 100 000 inhabitants due to exposure to PM2.5 in 2021 and relatively fewer impacts from exposure to NO2 ([46]). The smog-precursor emission intensity indicator fell by 55% between 2008 and 2021 to reach 1.03 tonnes/EUR 10, slightly above the EU average. The pace of Czechia's transition to a circular economy is also too slow, with scope to improve waste management and recycling (see Annex 9).

Intensive agriculture has a major impact on ecosystems, biodiversity and air quality. The annual output of Czechia's agricultural sector generated EUR 4.9 billion in 2023. The average size of Czech farms is the highest in the EU and large-scale farming is a major cause of natural habitat decline. Conservation tillage practices, which increase soil organic carbon, covered 32% of Czechia's tillable area in 2016. The country is increasing its share of organic farming, which accounted for 15.6% of total utilised agricultural area in 2021 against the EU target of 25% by 2030. The livestock density index was 0.47% in 2020 against the EU average of 0.75%, down from 0.49% in 2010. At the same time, the share of extensive livestock farming over the total utilized agricultural area was 40.7% in 2016, above the EU average of 23.8%. Most regions and provinces reduced the number of livestock units. Intensive livestock farming puts a high burden on the environment in terms of ammonia emissions into the air. The agricultural sector was responsible for generating 92.4% of all ammonia emissions, against the EU-27 average of 90.7%. Only 0.7% of Czechia's total utilised agricultural area is irrigated and the share of water abstracted for agricultural purposes accounted for 3.9% of all water abstracted in 2019.

([42]) National LULUCF targets of the Member States in line with Regulation (EU) 2023/839.

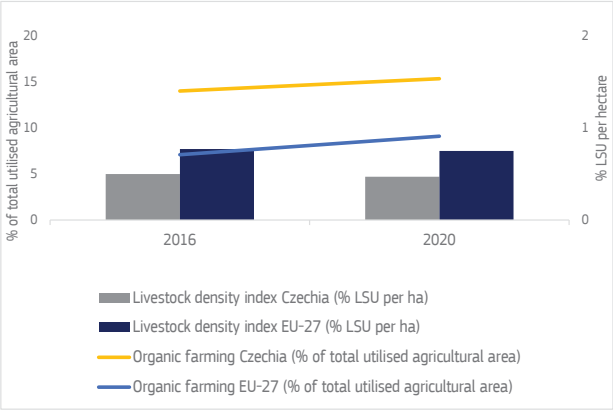
([43]) Projections submitted in Czechia's draft updated national energy and climate plan, 2023.

([44]) Also see the Commission's 2023 assessment and recommendation on Czechia's progress on climate adaptation.

([45]) Measured as GDP over total fresh surface water abstracted in cubic meters.

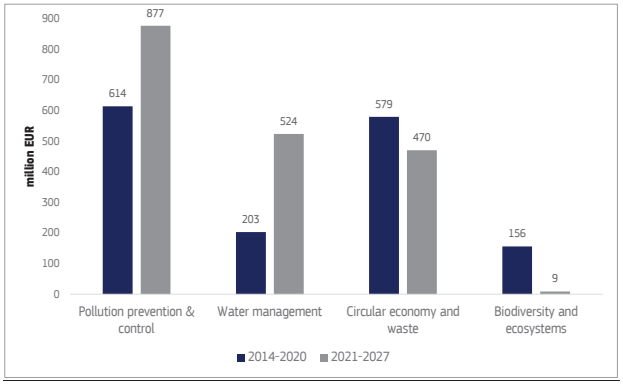
([46]) Czechia recorded 57 years of life lost for every 100 000 inhabitants.

Graph A6.2: **Changes in livestock density and organic farming**



Livestock unit (LSU)/ha of UAA: it measures the stock of animals (cattle, sheep, goats, equidae, pigs, poultry and rabbits) converted in LSUs per hectare of UAA.
Source: Eurostat

Graph A6.3: **Environmental investment gap, annual average**



The numbers are computed by the European Commission based on the latest internal reports, Eurostat, EIB and national data sources.
Source: European Commission

Pesticide contamination of rivers and groundwater remains a challenge. The latest figures for the gross nitrogen balance on agricultural land in Czechia show an average surplus of 75.6 kg of nitrogen per hectare per year in 2019, below the EU average. The content of nitrates in groundwater is below the EU average at 18.5 versus 20.5 mg nitrates/l. 7% of groundwater monitoring stations indicate levels above the maximum 50 mg nitrates/l over the 2016-2019 reporting period. The chemical status of waterbodies is highly affected by pesticide pollution. In 2021, 25.2% of monitoring sites were reported to have pesticide levels exceeding the thresholds set by the Water Framework Directive.

Czechia would benefit from increasing environmental investment, particularly in pollution prevention and control, and in circular economy and waste. In 2014-2020, the environmental investment gap was estimated at EUR 1.6 billion per year, equivalent to 0.8% of GDP. The gap is estimated to be higher in 2021-2027, at EUR 1.8 billion per year. The annual investment gap for pollution prevention and control has widened to EUR 877 million per year, the investment gap for circular economy and waste narrowed slightly to EUR 470 million.

Table A6.1: **Indicators tracking progress on the European Green Deal from a macroeconomic perspective**

							Target	Distance	
		2005	2019	2020	2021	2022	2030	WEM	WAM
Progress to climate and energy policy targets									
Greenhouse gas emission reductions in effort sharing sectors [1]	Mt CO_{2eq} %, pp	64,965.3	-2%	-5%	-6%	-9%	-26%	-10	6
Net greenhouse gas removals from LULUCF [2]	Kt CO2eq	-8 722	6 493	9 700	6 588	3 378	-1,228	n/a	n/a
Share of energy from renewable sources (1) [3]	%	7%	16%	17%	18%	18%	33%	-	-
Energy efficiency: primary energy consumption [3]	Mtoe	42.5	39.7	37.6	39.5	38.6	28.8		
Energy efficiency: final energy consumption [3]	Mtoe	26.1	25.3	24.5	26.1	24.9	20.4		

							EU-27		Projected
		2018	2019	2020	2021	2022	2021	2022	2030
Green transition: mobility									
Greenhouse gas emissions: road transport	Mt CO2e	-	-	-	18.9	20.5	769.0	786.6	11.5
Share of zero-emission vehicles in new registrations [4]	%	0.3	0.3	1.6	1.3	2.0	9	12.1	n/a
Number of publicly accessible AC/DC charging points		-	-	1097	1990	1414	299178	446956	n/a
Share of electrified railways	%	33.8%	33.8%	33.9%	34.0%	-	56.1%	-	n/a
Green transition: buildings									
Greenhouse gas emissions: buildings	Mt CO2e	-	-	-	13.2	12.8	537.0	486.7	13.3
Final energy consumption in buildings	2015=100	104.3%	104.2%	104.0%	111.1%	103.1%	104.0%	97.2%	
Climate adaptation									
Climate protection gap [5]	score 1-4	-	-	1.9	1.2	1.3	1.5	1.5	n/a

		2018	2019	2020	2021	2022	2020	2021	2022
State of the environment									
Water | Water exploitation index (WEI+) (1) [6]	% of renewable freshwater	10.7	12.1	-	-	-	3.6	-	-
Circular economy | Material footprint [7]	tonnes per person	17.6	17.3	16.1	18.3	18.7	14.2	14.8	14.9
Pollution | Years of life lost due to air pollution by PM2.5 [8]	per 100.000 inhabitants	1,079	729	643	822	-	545	584	-
Biodiversity | Habitats in good conservation status [9]	%	19.4					14.7		
Common farmland bird index [10]	2000=100	71	68	68	-	-	78	-	-
Green transition: agri-food sector									
Organic farming	% of total utilised agricultural area	14.76	15.19	15.33	15.55	-	9.1	-	-
Nitrates in groundwater	mg NO_3/litre	29.79	29.54	30.51	-	-	20.42	-	-
Food waste per capita	Kg per capita			91	-	-	130	131	-
Share of soil in poor health [11]	%					44			41
Soil organic matter in agricultural land [12]	Mt per ha	190	-	-	-	-	7,904	-	-

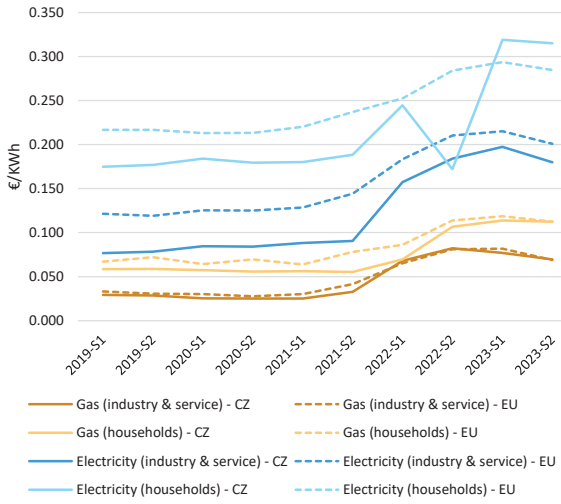
Sources: (1) Member States' emission data for 2019 and 2020 are in global warming potential (GWP) values from the 4th Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). Member States' 2005 base year emissions under Regulation (EU) 2018/842, emissions data for 2021 and 2022, and 2030 projections are in GWP values from the 5th Assessment Report (AR5) of the IPCC. 2021 data are based on the final inventory reports, 2022 data are based on approximated inventory reports and European Environmental Agency's calculation of effort sharing emissions. The final data for 2021 and 2022 will be established after a comprehensive review in 2027. The 2030 target is in percentage change of the 2005 base year emissions. Distance to target is the gap between the 2030 target and projected effort sharing emissions with existing measures (WEM) and with additional measures (WAM), in percentage change from the 2005 base year emissions. The measures included for the 2030 emission projections reflect the state of play as reported in Member States' draft updated national energy and climate plans or, if unavailable, as reported by 15 March 2023 as per Regulation 2018/1999. (2) Net removals are expressed in negative figures, net emissions in positive figures. Reported data are from the 2024 greenhouse gas inventory submission. 2030 value of net greenhouse gas removals as in Regulation (EU) 2023/839 – Annex IIa. (3) The 2030 national objectives for renewable energy and energy efficiency are indicative national contributions, in line with Regulation (EU) 2018/1999 (the Governance Regulation), the EU-level 2030 renewable energy target set out in Directive EU/2018/2001 amended by Directive EU/2023/2413 (the revised Renewable Energy Directive) – 42.5% of gross final energy consumption with the aspiration to reach 45% –, and the formula in Annex I to Directive (EU) 2023/1791 (the Energy Efficiency Directive). (4) Passenger battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). (5) The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters, based on modelling of the risk from floods, wildfires, windstorms, and the insurance penetration rate. Scale: 0 (no protection gap) –4 (very high gap) (European Insurance and Occupational Pensions Authority, 2022). (6) Total water consumption in renewable freshwater resources available for a territory and period. (7) Material extractions for consumption and investment. (8) Years of potential life lost through premature death due to exposure to particulate matter with a diameter of less than 2.5 micrometres. (9) Share of habitats in good conservation status according to the records submitted under Art. 17 of the Habitats Directive (Directive 92/43/EEC) for 2013-2018. (10) Multi-species index measuring changes in population abundances of farmland bird species. (11) Source: annex 12 of the Commission's proposal for a soil monitoring law, SWD (2023) 417 final. (12) Estimates of organic carbon content in arable land.

This Annex ([47]) sets out Czechia's progress and challenges in accelerating the net-zero energy transition while bolstering the EU's competitiveness in the clean energy sector ([48]). It considers measures and targets put forward in the draft updated National Energy and Climate Plans (NECP) for 2030 ([49]).

Czechia displays some positive developments in terms of energy legislation and measures to decarbonise its economy. However, renewables still play a minor role in Czechia, and reducing the energy consumption of the residential sector remains a challenge. Comparatively high energy prices weigh down on Czechia's competitiveness.

Despite a noteworthy decline in the second half of 2023, aligning with the prevailing trends witnessed across the EU, energy retail prices in Czechia remained substantially higher than pre-crisis levels. Between the second semester of 2022 and of 2023, average retail household prices witnessed an increase of 5.5% for gas, and of 30% for electricity. Both still significantly exceed pre-crisis levels. Average electricity prices for household remain at one of the highest levels in the EU (10% above EU average). For the industrial and services sectors, average retail gas prices have been steadily falling since their peak in the second half of 2022. Similarly, the average retail electricity price decreased by 9% in the second half of 2023, as compared to the first half of the same year. In both cases, price remain twice as high as the pre-crisis average. The gap between Czechia and EU average for industry and service electricity prices continues to close.

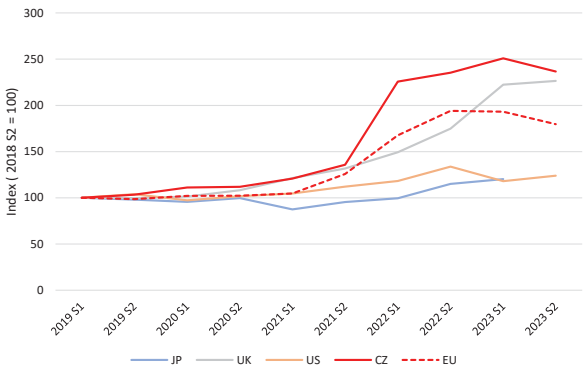
Graph A7.1: **Czechia's energy retail prices for households and industry**



1) For industry, consumption bands are I3 for gas and IC for electricity, which refer to medium-sized consumers and provide an insight into affordability
(2) For households, the consumption bands are D2 for gas and DC for electricity
(3) Industry prices are shown without VAT and other recoverable taxes/levies/fees as non-household consumers are usually able to recover VAT and some other taxes
Source: Eurostat

In relative terms, electricity prices for non-household consumers have increased significantly compared to the US, Japan, and to a lesser extent, the UK, thus potentially affecting the international competitiveness of energy-intensive industries in Czechia.

Graph A7.2: **Trends in electricity prices for non-household consumers (EU and foreign partners)**



(1) For Eurostat data (EU and CZ), the band consumption is ID referring to large-sized consumers with an annual consumption of between 2 000 MWh and 20 000 MWh, such as in electricity intensive manufacturing sectors, and gives an insight into international competitiveness
(2) JP = Japan
Source: Eurostat, IEA

([47]) It is complemented by Annex 6 as the European Green Deal focuses on the clean energy transition and by Annex 8 on the action taken to protect the most vulnerable groups, complementing ongoing efforts under the European Green Deal, REPowerEU and European Green Deal Industrial Plan.

([48]) In line with the Green Deal Industrial Plan and the Net-Zero Industry Act.

([49]) Czechia submitted its draft updated NECP in October 2023; the Commission issued an assessment and country specific recommendations on 18 December 2023. Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Czechia - European Commission (europa.eu).

To shield consumers from soaring prices during the energy crisis, the government capped electricity and gas prices until the end of 2023. The price cap covered 100% of household consumption of electricity and gas. It applied also to small and medium-sized firms as well as to some public institutions. Beyond this extraordinary measure, low-income households can benefit from general social support when facing difficulties paying their energy bills. This consumer group is also increasingly included in energy efficiency funding schemes (such as the dedicated New Green Savings Light).

Consumer empowerment has improved, with a number of legislative acts under preparation or adopted in 2023, but some caveats remain. The second amendment to the Energy Act (Lex RES II) sets a regulatory framework for renewable and energy communities, promoting an active role for consumers within such communities. However, further work is needed to make this legislative framework more comprehensive. For example, renewables self-consumers with an installed capacity of up to 10 kW are not yet allowed to feed excess electricity into the grid to avoid grid overflow.

The legislative process to address flexibility as well as dynamic pricing and comparison tools has also started. Czechia is preparing the conditions to deploy smart meters, whose rollout remains at an early stage. With regards to the retail market situation, after a sharp increase in 2021, the switching rates in electricity and gas fell below 10% in 2022. The share of fixed price contracts also decreased during the same period. ([50])

The interruption of Russian gas supply due to the war in Ukraine prompted Czechia to diversify its supply channels, prioritising securing alternative sources for oil and gas. Czechia could rely on robust gas infrastructure with neighbouring countries, in particular with Germany and Slovakia, that allowed the country to cover its gas consumption with non-Russian gas. Czechia has eight underground storage facilities with a total capacity of around 4.17 bcm, representing a bit more than half of its total yearly consumption. Since 2022, the underground storage facility in Dolni Bojanovice, which previously only supplied Slovakia, is now connected to the Czech gas market. Czechia fulfilled its gas storage obligations last winter, reaching 99% by 1 November 2023, and ended the winter season with a storage filled at 64.29% by 1 April 2024. Czechia managed to reduce its gas demand between August 2022 and December 2023 by 19% compared to the average of the previous 5 years.

Czechia's energy mix remains dominated by fossil fuels, although the country plans to phase out coal by 2033. Fossil fuels are representing 70.4% of gross available energy in 2022. Natural gas holds a slightly less prominent position in comparison to the EU average, constituting 15% of the overall energy mix. Before the war in Ukraine, Czechia had a relatively high import dependence on Russia, reaching 25.4% in 2021, mainly for oil, liquid fuels and natural gas.

Nuclear energy, along with renewables, has a key role to play in decarbonisation of the Czech economy, securing energy supply and providing affordable energy for consumers. The government plans to maintain the existing installed nuclear capacity ([51]) and further expand the share of nuclear in the national energy mix, up to 25-33% (currently 15%) in primary energy sources and to 46-58% (against 37% in 2022) in gross electricity production by 2040. To meet these targets, both the construction of up to four new nuclear reactors and the development of small modular reactors (mainly at former sites of coal-fired power plants) are planned. To avoid Russian dependency, the nuclear operator of both plants has secured alternative nuclear fuel supplies by concluding supply contracts with Westinghouse and Framatome. To support the implementation of the nuclear programme, Czechia is putting a strong emphasis on nuclear research, development and innovation.

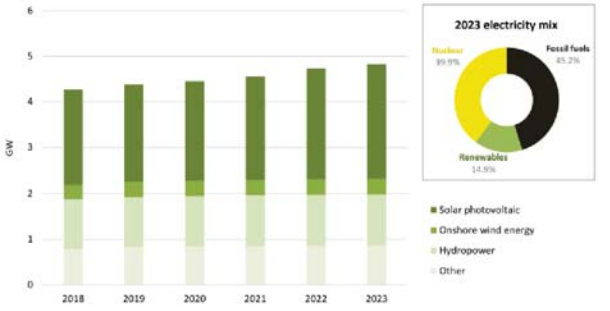
Deployment of renewables remains substantially slow. Installed renewables capacity grew by 1.9% in 2023, mainly due to a small increase in solar photovoltaics and wind. The total renewable energy capacity in Czechia in 2023

([50]) Energy Retail and Consumer Protection 2023 Market Monitoring Report (europa.eu)

([51]) 4240 Mwe from 6 nuclear reactors in Dukovany and Temelin

stood at 4 823 MW ([52]). As regards the acceleration of solar deployment, the total installed capacity in 2023 was 2 420 MW, almost an 8% increase from 2022 ([53]), but lower than last year's growth (17% from 2021). Wind capacity in Czechia saw a slight increase for the first time since 2019 (1%) but remains very limited. ([54]) Therefore, there is considerable potential to further accelerate the deployment of renewable energy in Czechia.

Graph A7.3: **Czechia's installed renewable capacity (left) and electricity generation mix (right)**



(1) "Other" includes renewable municipal waste, solid biofuels, liquid biofuels, and biogas.
Source: IRENA, Ember

Czechia has taken some steps in implementing reforms to accelerate the deployment of renewables. Its amendment to the Energy and Building Act (Lex RES I) entered into force at the beginning of 2023. This amendment simplifies the permit-granting procedure for small-scale renewable energy installations, by exempting projects of up to 50 kW from the need to obtain an electricity production license and a building permit. It alsoestablishes that renewable and low-carbon energy installations larger than 1 MW are considered to be built and operated in the public interest. However, so-called Renewables Acceleration Areas remain to be defined and a one-stop-shop has not been established.

Although Czechia is well connected with its neighbours, the electricity network (and especially the regional distribution systems) needs to be modernised and digitalised,to remove severe bottlenecks in the grids and maximise the additional technical capacity for integrating renewables. Czechia has included specific reforms and investment in this area in the REPowerEU chapter of its recovery and resilience plan. Further reinforcements of the transmission grid are planned, to keep the adequate connectivity level and ensure the reliability of the grid in the future. Some of these projects have received PCI status, namely the cluster of internal lines in the northwest-south and southwest-east corridors and a new interconnector with Slovakia. Other electricity projects focus on modernising the distribution grid: Gabreta Smart Grids (Czechia, Germany) and ACON - Again COnnected Networks (Czechia, Slovakia).

The deployment of renewable hydrogen infrastructure is to be supported with the reforms announced in the REPowerEU chapter. Hydrogen projects have also been included in the first EU list of Projects of common interest and Projects of mutual interest: the hydrogen corridor between Czechia and Germany and the corridor from Ukraine to Czechia, Austria and Germany. In addition, Czechia's draft updated NECP sets a capacity target of 300-400 MW for hydrogen electrolysers by 2030.

Czechia demonstrated progress but there is still untapped potential on energy efficiency, which weight on Czechia's competitiveness. Czechia has been decreasing both primary and final energy consumption (on primary energy consumption a 2.3% decrease compared to 2021, and a 4.3% decrease compared to 2012, while for final energy consumption a 4.5% decrease compared to 2021, and a 2.1% increase compared to 2012). Reducing energy consumption in the transport sector, whose final energy consumption increased by 4% in the last year, remains a particular challenge.

Czechia has implemented a series of energy efficiency measures with the support of several EU funds. Most of these schemes address the building stock, including in the public sector. More than 17% of the recovery and resilience plan (EUR 1.3 billion) will finance large-scale renovation programmes to increase the energy efficiency of residential and public buildings, including childcare and long-term care facilities, as well as scaled-up investment into

([52]) IRENA report Renewable Energy Statistics 2024

([53]) IRENA report Renewable Energy Statistics 2024, the data might differ from the Eurostat data due to the use of a different methodology to calculate the capacity in AC and DC.

([54]) IRENA report Renewable Energy Statistics 2024

decarbonising district heating. To support energy savings in family houses and apartment buildings, as well as constructing buildings with very low energy intensity and efficient use of renewable energy, Czechia has been implementing the programmes New Green Savings and New Green Savings Light. Most of the existing funding schemes on energy efficiency are still grant-based, implemented via calls for projects. A more significant use of financial instruments would usefully complement the grants, while putting less strain on public budgets.

Czechia needs to step up its efforts to achieve a meaningful contribution to its 2030 target for building energy consumption reduction. As per its most recent Long Term Renovation Strategy, Czechia aimsto reduce building energy consumption by 8% in 2030 compared to 2020. However, between 2020 and 2022, the final energy consumption of the residential sector did not change ([55]). According to research projects, Czechia's building stock presents relatively poor levels of energy performance, with only 11-12% of buildings considered very efficient and just under 50% of buildings considered inefficient or very inefficient. Most of the measures on energy efficiency supported under public schemes have been focused on reaching at least the medium level (30% savings), the number of deep renovations remains thus very low.

Heating and cooling represent almost 85% of the country's residential final energy consumption, with district heating playing a key role. Coal remains the main source for heating. Czechia's share of renewables in heating and cooling (24.4% in 2021) is slightly above the EU average, mostly related to biomass use. Approximately 60 000 heat pumps were sold in 2022, an increase of 107% in one year. However, because of the electricity to gas price ratio in the first half of 2023, Czechia is on the edge of cost rentability of heating by heat-pumps. In addition, reconstruction of the district heating systems and the deep renovation of all buildings that are connected to the district heating system is too slow to significantly diminish the need for new natural gas heat sources during the upcoming coal-exit. Therefore, Czechia should focus more on levelling the playing field between electricity and fossil fuels, in particular in terms of charges, to further support decarbonisation of heating and cooling.

Czechia remains highly dependent on non-EU countries for clean energy technologies, **though it has demonstrated progress in battery manufacturing and has a foothold in the wind supply chain.** For wind, Czechia has manufacturing facilities for onshore wind towers and the related machinery in Chrudim and Běrunice. Regarding battery facilities, the first lithium-ion battery manufacturing facility was opened in Ostrava in 2017, and a second manufacturing plant opened in the Karvina region in 2020, with an annual production capacity of 1200 MWh. The envisaged large-scale lithium mining project in Cínovec, home to one of the largest lithium deposits in Europe, could significantly bolster Czechia's battery manufacturing supply chain (see Annex 12).

Czechia improved steadily its energy research and innovation (R&I) investments, but still lags behind the EU R&I investment target and remains one of the countries with the lowest investment in renewables. Public investment in Energy Union R&I topics increased to 0.049% in 2021 (as a share of GDP). Including also private investments, Venture Capital investment in clean energy tech start-ups and scale-ups represented 24,1% (EUR 36.8 Million) of the total Venture Capital Investment for start-ups and scale-ups, mostly focusing alternatives to conventional construction processes, and technologies to improve the energy efficiency of buildings and for heating & cooling.The distribution of public and private investment and patents continues to be dominated by energy efficiency, sustainable transport and nuclear safety.

([55]) Final energy consumption in households from Eurostat (data-tables of December 2023), climate-corrected by the Joint Research Centre with reference period 2005-2022 (FEC climate corrected = FEC/ (HDD/HDD reference period).

Table A7.1: **Key Energy Indicators**

		Czechia				EU			
		2019	2020	2021	2022	2019	2020	2021	2022
ENERGY DEPENDNCE	**Import Dependency [%]**	**40.8%**	**38.8%**	**40.0%**	**41.8%**	**60.5%**	**57.5%**	**55.5%**	**62.5%**
	of Solid fossil fuels	8.6%	12.8%	13.9%	13.9%	43.3%	35.8%	37.3%	45.8%
	of Oil and petroleum products	97.5%	101.2%	96.9%	99.9%	96.7%	96.8%	91.7%	97.7%
	of Natural Gas	109.8%	86.0%	92.1%	113.4%	89.7%	83.6%	83.6%	97.6%
	Dependency from Russian Fossil Fuels [%]								
	of Natural Gas	99.7%	100.0%	100.0%	59.8%	39.7%	41.3%	41.1%	21.0%
	of Crude Oil	49.4%	48.8%	49.9%	56.0%	28.8%	26.7%	26.4%	19.5%
	of Hard Coal	11.3%	10.1%	4.3%	1.2%	43.5%	49.1%	47.4%	21.5%

		2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	**Gas Consumption (in bcm)**	**8.5**	**8.7**	**8.3**	**8.7**	**8.8**	**9.5**	**7.6**
	Gas Consumption year-on-year change [%]	7.9%	2.8%	-5.3%	5.0%	1.6%	7.2%	-19.5%
	Gas Imports - by type (in bcm)	**8.1**	**8.9**	**8.0**	**9.5**	**7.6**	**8.7**	**8.6**
	Gas imports - pipeline	8.1	8.9	8.0	9.5	7.6	8.7	8.6
	Gas imports - LNG	0.0	0.0	0.0	0.0	0.0	0.0	-
	Gas Imports - by main source supplier (in bcm) (1)							
	Norway	0.0	0.1	0.0	0.0	-	-	1.1
	Russia	8.1	8.8	8.0	9.5	7.6	8.7	5.1

		2019	2020	2021	2022	2023
	LNG Terminals - storage capacity m3 LNG					
	Number of LNG Terminals	0	0	0	0	0
	LNG Storage capacity (m3 LNG)	0	0	0	0	0
	Underground Storage					
	Number of storage facilities	9	9	9	9	9
	Technical Capacity (bcm)	3.1	3.2	3.2	3.2	3.9

		2016	2017	2018	2019	2020	2021	2022	2023
ELECTRICITY/ENERGY	**Gross Electricity Production (GWh) (2)**	**83,309**	**87,056**	**88,038**	**87,035**	**81,525**	**85,016**	**84,848**	-
	Combustible Fuels	53,279	52,783	52,338	50,474	44,933	47,677	47,346	-
	Nuclear	24,104	28,340	29,921	30,246	30,043	30,731	31,022	-
	Hydro	3,202	3,040	2,679	3,175	3,437	3,620	3,083	-
	Wind	497	591	609	700	699	602	641	-
	Solar	2,131	2,199	2,365	2,316	2,294	2,250	2,626	-
	Geothermal	-	-	-	-	-	-	-	-
	Other Sources	96	103	125	124	118	136	130	-
	Gross Electricity Production [%]								
	Combustible Fuels	64.0%	60.6%	59.4%	58.0%	55.1%	56.1%	55.8%	-
	Nuclear	28.9%	32.6%	34.0%	34.8%	36.9%	36.1%	36.6%	-
	Hydro	3.8%	3.5%	3.0%	3.6%	4.2%	4.3%	3.6%	-
	Wind	0.6%	0.7%	0.7%	0.8%	0.9%	0.7%	0.8%	-
	Solar	2.6%	2.5%	2.7%	2.7%	2.8%	2.6%	3.1%	-
	Geothermal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Other Sources	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	-
	Net Imports of Electricity (GWh)	**- 10,974**	**- 13,037**	**- 13,907**	**- 13,097**	**- 10,153**	**- 11,075**	**- 13,529**	-
	As a % of electricity available for final consumption	-18.4%	-21.4%	-22.7%	-21.4%	-17.2%	-17.8%	-22.6%	-
	Electricity Interconnection [%]		**19.3%**	**21.7%**	**25.4%**	**27.5%**	**24.3%**	**28.6%**	**25.3%**
	Share of renewable energy consumption - by sector [%]								-
	Electricity	13.6%	13.7%	13.7%	14.0%	14.8%	14.5%	15.5%	-
	Heating/cooling	19.9%	19.7%	20.6%	22.6%	23.5%	24.3%	25.8%	-
	Transport	6.5%	6.6%	6.6%	7.8%	9.4%	7.2%	7.2%	-
	Overall	14.9%	14.8%	15.1%	16.2%	17.3%	17.7%	18.2%	-

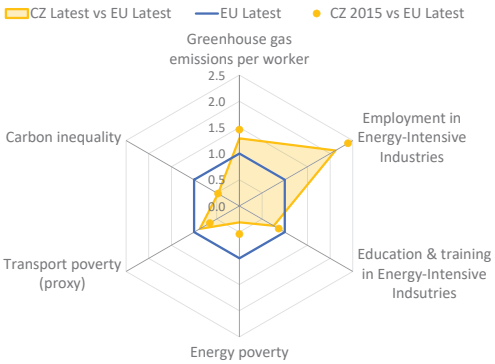
		2019	2020	2021	2022	2023
CLEAN ENERGY	**VC investments in climate tech start-ups and scale-ups (EUR Mln)**	-	**3.04**	-	-	**36.80**
	as a % of total VC investment (3) in Czechia start-ups and scale-ups	-	2.7%	-	-	24.1%
	Research & Innovation spending in Energy Union R&i priorites					
	Public R&I (EUR mln)	114.1	87.8	117.9	-	-
	Public R&I (% GDP)	0.05%	0.04%	0.05%	-	-
	Private R&I (EUR mln)	76.8	72.4	-	-	-
	Private R&I (% GDP)	0.03%	0.03%	-	-	-

(1) The ranking of the main suppliers is based on the latest available figures (for 2022)
(2) Venture Capital investment includes Venture Capital deals (all stages), Small M&A deals and Private Equity (PE) growth deals (for companies that have previously been part of the portfolio of a VC investment firm or have received Angel or Seed funding).
Source: Eurostat, Gas Infrastructure Europe, JRC elaboration based on PitchBook data (03/2024), JRC SETIS (2024)

This Annex monitors Czechia's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, particularly for workers and households in vulnerable situations. Czechia's green economy is expanding. Between 2015 and 2021, total jobs in the environmental goods and services sector grew by 24.9% (to around 151 000) (EU: 18.2%), reaching 2.9% of total employment (EU: 2.7%). Also, between 2015 and 2020, the greenhouse gas emission intensity of Czechia's workforce (see Graph A8.1 and Table A8.1) declined from 20.8 to 18.4 tonnes per worker, indicating a positive trend in the green transition, but still above the EU average (14.3 tonnes per worker in 2022) ([56]). The upskilling and reskilling of workers in energy-intensive sectors has increased to some extent, contributing to a fair transition towards climate neutrality in line with the Council Recommendation on ensuring a fair transition towards climate neutrality ([57]). However, the following developments remain key to achieving a fair transition and implementing the REPowerEU plan: i) accelerating the readiness of the education system for further development of green skills; ii) providing support for effective job-to-job transitions; iii) ensuring the economic accessibility of green technologies including electromobility; iv) strengthening the role of the social dialogue; and v) ensuring the public authorities' communication with the public and social partners is coordinated and effective.

Employment in Czechia's sectors that are most affected by the green transition remains well above EU average, but labour shortages linked to green economy remain, causing a bottleneck. In 2023, over 140 000 employees worked in the automotive sector in Czechia ([58]). In 2023, employment in Czechia's energy-intensive industries comprised 7.4% of total employment (EU: 3.5%), placing its workforce among the most energy-intensive in the EU. Nevertheless, employment in mining and quarrying has fallen by .43.4% since 2015 (from 37 800 in 2015to around 21400 workers in 2023). The job vacancy rate in construction (see Graph A8.2) – a key sector for the green transition – is much higher than the EU average (8.1% vs 3.6% in 2023). Also, 79% of small and medium-sized enterprises (SMEs) in this sector agreed that skills shortages are holding them back in general business activities ([59]). According to the European Labour Authority (ELA) ([60]), labour shortages were reported in 2022 for a number of occupations that required specific skills or knowledge for the green transition, including insulation workers, civil engineers and construction managers. In 2023, labour shortages were recorded for building construction labourers, and heavy truck and lorry drivers.

Graph A8.1: **Fair transition challenges in Czechia**



Source: Eurostat, EU Labour Force Survey, EMPL-JRC GD-AMEDI/AMEDI+ and DISCO(H) projects (see Table A8.1).

Upskilling and reskilling in energy-intensive industries slightly increased, but workers need continuous active support. In energy-intensive industries, ([61]) workers' participation in education and training decreased from 9.5% in 2015 to 8.2% in 2023 (EU: 10.9%), highlighting that more training needs to be provided to match the needs of the changing economy. By 2030, between 2 300 and 6 600 additional skilled workers will be needed for the deployment of wind and solar energy if Czechia matches its projected

([56]) Workforce-related calculations are based on the EU Labour Force Survey. Note, in the 2023 country report for Czechia, such indicators were calculated based on employment statistics in the national accounts. This may result in limited comparability across the two reports.

([57]) The Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04) covers employment, skills, tax-benefit and social protection systems, essential services and housing.

([58]) Czech Automotive Industry Association: average salaries and number of employees in 2022 and 2023.

([59]) Eurobarometer on skills shortages, recruitment, and retention strategies in small and medium-sized enterprises.

([60]) European Labour Authority (2023), EURES Report on labour shortages and surpluses 2022.

([61]) Mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24) and automotive (C29).

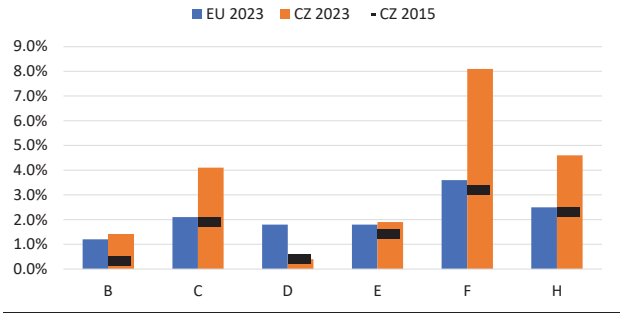
Table A8.1: **Key indicators for a fair transition in Czechia**

Indicator	Description	CZ 2015	CZ	EU
GHG per worker	Greenhouse gas emissions per worker – CO_2 equivalent tonnes	20.8	18.4 (2022)	14.3 (2022)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), and automotive (C29)	8.4%	7.4% (2023)	3.5% (2023)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries	9.4%	8.2% (2023)	10.9% (2023)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm	5.0%	2.9% (2022)	9.3% (2022)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport	24.2%	32.4% (2023)	37.1% (2023)
Carbon inequality	Ratio between the consumption footprint of the top 20% vs bottom 20% of the income distribution	1.3	1.3 (2021)	2.7 (2021)

Source: Eurostat (env_ac_ainah_r2, lfsa_egan2d, ilc_mdes01), EU Labour Force Survey (break in time series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ and DISCO(H) projects.

contribution to the EU's 2030 renewable energy target. This may require an investment in skills of EUR 9.8-12.2 million ([62]). Trautom in the Moravskoslezsko region funded by the Just Transition Fund (JTF) aims to upskill and reskill workers and help employees or jobseekers move from occupations at risk to new and better jobs. Project Jsem v Kurzu, funded by the Recovery and Resilience Facility, offers employed and unemployed individuals of all ages and backgrounds educational courses, including vocational training and retraining programmes aimed at strengthening digital skills. Project Outplacement funded by ESF+, with a EUR 12 million budget, is set to assist over 3 700 employees in finding new jobs during mass layoffs or sudden unemployment spikes in Czechia's regions.

Graph A8.2: **Job vacancy rate in transforming sectors and mining and quarrying**



B - Mining and quarrying
C - Manufacturing
D - Electricity, gas, steam and air conditioning supply
E - Water supply; sewerage, waste management and remediation activities
F - Construction
H - Transportation and storage
Source: Eurostat jvs_a_rate_r2.

Energy poverty indicators remain well below the EU average, but the spike in energy prices has put additional strain on the situation for vulnerable households. The share of the population unable to keep their homes adequately warm decreased from 5.0% in 2015 to 2.2% in 2021; it rose again to 2.9% in 2022 on the back of energy price increases due to supply constraints caused by the COVID-19 pandemic and Russia's war of aggression against Ukraine, despite the emergency measures implemented in Czechia. However, it is still well below the EU average of 9.3% ([63]). 7.3% of the population at risk of poverty (AROP) in 2022 suffered from energy poverty (EU: 20.1%), although a national definition is yet to be put in place. At the same time, in January 2023, 32.4% of population at risk of poverty spent a considerable share of their budget (more than 6%) on private transport fuels (EU: 37.1%) ([64]). Czechia does not yet have a national definition of energy poverty in place. Work is still ongoing on a methodology defining a consumer suffering from energy poverty. Overall, there is a lack of specific policies or structural measures to improve energy affordability that targeting vulnerable customers aimed at improving energy affordability. The issue of energy poverty is currently only partially addressed by social policy measures and, to some extent, by consumer protection policy measures.

Air pollution remains a critical issue leading to environmental inequalities. In 2021, the consumption footprint for 20% of the population with the highest income was 1.3 times higher than the footprint of the poorest 20% ([65]) (EU: 1.8). For

([62]) EMPL-JRC AMEDI+ project.

([63]) Energy poverty is a multi-dimensional concept. The indicator used focuses on an outcome of energy poverty. Further indicators are available at the Energy Poverty Advisory Hub.

([64]) Affordability of private transport fuels is one key dimension of transport poverty. The indicator has been developed in the context of the EMPL-JRC GD-AMEDI/AMEDI+ projects. Methodology explained in Economic and distributional effects of higher energy prices on households in the EU.

([65]) Developed in the context of the EMPL-JRC DISCO(H) project. Methodology explained in Joint Research Centre, 2024. Carbon and environmental footprint inequality of household consumption in the EU. JRC137520. The EU average refers to

both groups, the consumption footprint is highest for food and housing. The average levels of air pollution in Czechia stood above the EU average (13.5 vs 11.4 µg/m^3 PM2.5), with 91% of the population living in regions exposed to critical levels of air pollution ([66]). This has led to a significant impact on health, affecting vulnerable groups in particular, and an estimated 8 500 premature deaths ([67]).

Czechia is starting to make progress towards achieving a fair transition to climate neutrality, but significant challenges persist. Czechia is making good efforts, particularly through measures financed under the JTF and Recovery and Resilience Facility, in providing support to those most affected by the transition, including through social entrepreneurship and digitalisation, However, several challenges are still to be addressed. It will be essential for Czechia to upskill and reskill its workforce while focusing on the most affected workers, as well as ensure access to funding for SMEs, particularly in the sectors and regions most affected by the green transition. Effective coordination and involvement of the social partners, civil society organisations and key stakeholders would help ensure engagement and ownership in the green transition, including through specific funding, where relevant ([68]).

EU27 without Italy (household income data not available for IT in the HBS)

([66]) Two times higher than the recommendations in the WHO Air Quality Guidelines (annual exposure of 5µg/m^3).

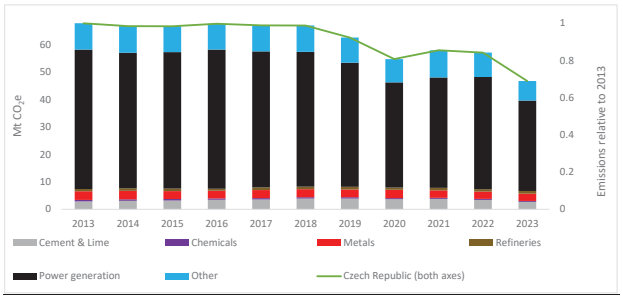
([67]) EEA - Air Quality Health Risk Assessment

([68]) Based on the monitoring review of the Council Recommendation on ensuring a fair transition towards climate neutrality, which took place in October 2023.

The green transition of industry and the built environment, in particular decarbonisation, resource efficiency and circularity, is essential to boost Czechia's competitiveness ([69]). In this regard, priorities for Czechia are waste management and the use of circular materials in industry and construction.

Czechia is not on track to achieve the EU Circular Economy Action Plan goals, despite its work in developing a circular and innovative industry. The material footprint increased from 16.4 to 18.5 tonnes per capita between 2020 and 2022, staying above the EU average of 14.8 tonnes per capita. Czechia's total waste production increased to 3.6 tonnes per capita in 2020, less than the EU average of 4.8 per capita. There is still room to make better use of the potential of the circular economy transition, also to drive the decarbonisation of Czechia's economy.

Graph A9.1: **ETS emissions by sector since 2013**



Source: European Commission

In 2023, the sectors covered by the EU emissions trading system (ETS) in Czechia ([70]) emitted 25% less greenhouse gases than in 2019. In 2023, 71% of the greenhouse gases emitted by Czechia's ETS installations came from power generation, much more than the EU average (57%). Of the total emissions from all industry sectors, around 20% each came from cement and lime production and from the metals industry, 7% from refineries, and only a minor share from the chemical industry, 2%; about 55% was classified as coming from 'other' sources ([71]). Between 2019 and 2023, the power sector registered a higher greenhouse gas emissions reduction (27%) than the industry sectors (21%). While greenhouse gas emissions from power generation have declined by 35% since 2013, emissions from refineries have increased by 15%. Between 2013 and 2023, greenhouse gas emissions from industry sectors decreased by 19%.

Czechia is narrowing the efficiency and productivity gap with the EU average. The overall circular material use rate increased from 9.1% in 2017 to 11.9% in 2022. Similarly, resource productivity stood below the EU average but has recorded a steady increase since 2017 and reached almost 2 purchasing power standards per kilogram in 2022. Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help minimise negative impacts on the environment and reduce dependence on volatile raw material markets. Furthermore, Czechia was dependent on imports for 33% of materials used in 2022, compared with an EU average of 22.4%, making the country comparatively more vulnerable to supply chain disruptions. Water abstraction for manufacturing purposes accounted for 16.2% of total water abstracted in 2019.

Although public awareness of circular economy principles is rather low, the uptake of circular business models is progressing. The 2022 Eco-Innovation Scoreboard placed the country in the 'average performers group', with a score of 111. As of September 2023, Czechia totalled 32 awarded EU Ecolabel licences and 5 374 products with the EU Ecolabel, showing an increasing take-up of products and licences.

Despite positive trends in recycling, there is still room to improve Czechia's waste disposal methods to meet all EU targets. With a municipal waste recycling rate of 43.3% in 2021, Czechia is on track to meet the 2025

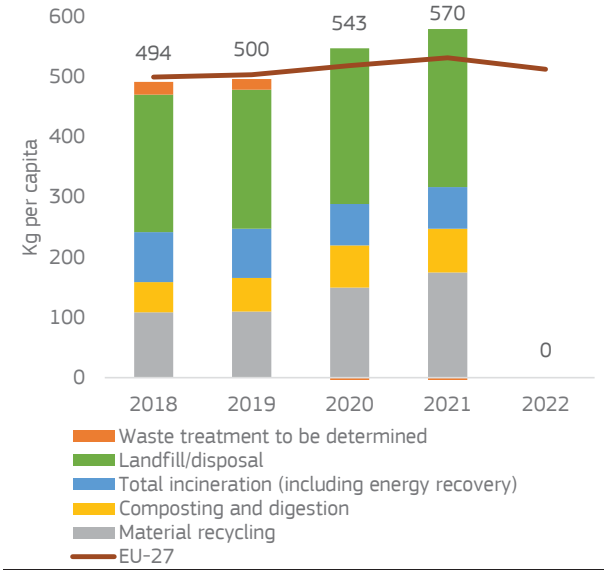
([69]) See also Annexes 6, 7 and 12.

([70]) This analysis excludes air travel. The data for 2023 reflects verified emissions as of 14 May 2024 and may still be revised due to late data submissions. For more details and the data sources, see Weitzel, M; van der Vorst, C. (2024), Uneven progress in reducing emissions in the EU ETS, JRC Science for policy brief, JRC138215, Joint Research Centre.

([71]) Greenhouse gas emissions classified as coming from 'other' sources appear to relate to the metals industry (around 20%), the chemical industry (around 30%), and smaller installations in industries such as chemicals, manufacture of industrial gases, paper, or glass production (around 30%).

targets for municipal waste and packaging. The recycling rate of plastic packaging dropped significantly after 2020 but remained above the EU average – 45.1% versus 39.7% in 2021. Furthermore, Czechia is a top performer in e-waste recycling with 94.5% of electrical and electronic equipment recovered in 2021. The country is still highly reliant on landfilling, which is the main waste treatment option, and risks missing the 2035 landfilling target. Czechia registered 7 new patents on waste recycling in 2020, slightly fewer than the previous year, but the overall trend is still positive.

Graph A9.2: **Treatment of municipal waste**



Source: Eurostat

As regards the built environment's transition to the circular economy, there is still room to improve the efficiency of resource use. Residential floor areas per capita increased between 2016 and 2020 but remained below the EU average – 31.61 versus 36.48 m^2 per capita. Non-residential floor areas grew slower and stood at 8.29 m^2 per capita versus an EU average of 15.31 m^2. In 2020, Czechia submitted a long-term renovation strategy aiming to decarbonise the building stock.

Czechia made progress in sustainably managing waste from the construction sector, but there is still room for improvement. Waste generated from construction and demolition activities doubled between 2010 and 2020, reaching approximately 6.5 million tonnes and almost equalling the EU average per capita. The proportion of backfilling has increased since 2018 and stood at 84.9% in 2020, well above the EU average of 52.6%. Czechia's recovery rate increased to 96% in 2020, meeting the Waste Framework Directive's target for 2020 and exceeding the EU average.

In 2020, 85% of the Czech population was connected to at least secondary wastewater treatment.

Table A9.1: **Circularity indicators**

	2018	2019	2020	2021	2022	2023	EU-27	Latest year
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.7	1.8	1.9	1.9	2.0	-	2.5	2022
Circular material use rate (%)	10.4	10.5	11.5	11.4	11.9	-	11.5	2022
Eco-innovation index (2013=100)	100.4	103.7	104.9	109.9	111.0	-	121.5	2022
Recycling of plastic packaging (%)	57.0	61.0	41.8	45.1	-	-	40.7	2021
Cost of air emissions from industry (EUR bn)	23.1	19.9	17.8	-	-	-	352.7	2021
Built environment								
Recovery rate from construction and demolition waste (%)	-	-	96.0	90.8	-	-	89.0	2020
Soil sealing index (base year = 2006)	103.0	-	-	-	-	-	103.4	2018
Non-residential floor area (m^2 per capita)	11.0	11.1	11.2	-	-	-	18.0	2020
Waste backfilled (%)	23.8	-	26.2	-	13.8	-	9.9	2020

Source: Eurostat, European Environment Agency

Digital transformation is key to ensuring a resilient and competitive economy. In line with the Digital Decade policy programme, and in particular with its targets for digital transformation by 2030, this Annex describes Czechia's performance on digital skills, digital infrastructure/connectivity and the digitalisation of businesses and public services. Where relevant, it makes reference to progress on implementing Czechia's recovery and resilience plan. Czechia allocates 23% of its total Recovery and Resilience Facility (RRF) budget to digital targets (EUR 1.9 billion) ([72]). Under cohesion policy, an additional EUR 1.9 billion (9% of the country's total cohesion policy funding) is allocated to the country's digital transformation ([73]).

The Digital Decade Policy Programme sets out a pathway for EU's successful digital transformation by 2030. Czechia's national roadmap outlines the actions it intends to take to reach the objectives and targets at national level. The first Report on the State of the Digital Decade highlighted the need to accelerate and deepen the collective efforts to reach the EU-wide targets and objectives ([74]). Among others, a digitally skilled population increases the development and adoption of digital technologies and leads to productivity gains and new business models. It also leads to higher inclusion and participation in an environment increasingly shaped by the digital transformation ([75]). Digital technologies, infrastructure and tools all play a role in addressing the current structural challenges, including strategic dependencies, cybersecurity and climate change.

A relatively large proportion of the Czech population has at least basic digital skills, but the current lack of ICT specialists hampers the digital transformation of the economy. Almost 70% of individuals have at least basic digital skills, which is above the EU average of 56%. The share of ICT specialists as a proportion of total employment is below the EU average (4.3% versus EU average of 4.8%). Moreover, only 12.4% of ICT specialists in Czechia are women, the lowest score in the EU. In addition, 77% of Czech enterprises report difficulties in hiring ICT specialists, the second highest score in the EU ([76]). The challenge is being tackled by the ongoing education curricula reform (supported by the RRF), which is expected to stimulate interest in advanced digital technologies already in primary schools. Furthermore, among other measures, a new instrument of active employment policy, including a contribution to the payment of a digital education course to support development of digital skills and skills for Industry 4.0, is also funded from the RRF.

Czechia faces challenges in digital infrastructure/connectivity. The country's coverage in very high capacity network (VHCN) and fibre to the premises (FTTP) are statgnating and remain below the EU average. Moreover, the take-up of fast and gigabit broadband remains one of the lowest in the EU. Concerning mobile broadband, high prices to consumers ([77]) are the main deterrent for take-up, a trend that is amplified by the inflation rate as some telecom operators raised their prices in January 2023. The mobile broadband take-up is around the EU average at 90% of individuals. Telecom operators are increasing their overall 5G coverage (95% of populated areas covered versus 83% last year), focusing mainly on cities and the main transport routes.

The proportion of Czech SMEs with at least basic level of digital intensity is well below the EU average. However, the country performs well in online sales and the turnover from e-commerce is increasing. Czech enterprises are below the EU average in their use of cloud solutions, artificial intelligence and data analytics.

([72]) The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

([73]) This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 Cohesion Policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

([74]) European Commission (2023): Report on the State of the Digital Decadea 2023, 2023 Report on the state of the Digital Decade | Shaping Europe's digital future (europa.eu).

([75]) See for example OECD (2019): OECD Economic Outlook, Digitalisation and productivity: A story of complementarities, OECD Economic Outlook, Volume 2019 Issue 1 | OECD iLibrary (oecd-ilibrary.org) and OECD (2019): Going Digital: Shaping Policies, Improving Lives – Summary, https://www.oecd.org/digital/going-digital-synthesis-summary.pdf.

([76]) Please refer to Annex 12.

([77]) Study on Mobile and Fixed Broadband Prices in Europe 2021, EC, 2022.

Table A10.1:**Key Digital Decade targets monitored by the Digital Economy and Society Index indicators**

	Czechia			EU	Digital Decade target by 2030 (EU)
	2022	2023	2024	2024	
Digital skills					
At least basic digital skills	**60%**	**60%**	**69%**	**56%**	**80%**
% individuals	2021	2021	2023	2023	2030
ICT specialists ([1])	**4.6%**	**4.5%**	**4.3%**	**4.8%**	**20 million**
% individuals in employment aged 15-74	2021	2022	2023	2023	2030
Digital infrastructure/connectivity					
Fixed very high capacity network (VHCN) coverage	**52%**	**53%**	**51%**	**79%**	**100%**
% households	2021	2022	2023	2023	2030
Fibre to the premises (FTTP) coverage ([2])	**36%**	**37%**	**36%**	**64%**	**-**
% households	2021	2022	2023	2023	
Overall 5G coverage	**49%**	**83%**	**95%**	**89%**	**100%**
% populated areas	2021	2022	2023	2023	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**53%**	**NA**	**49%**	**58%**	**90%**
% SMEs	2021		2023	2023	2030
Data analytics	**NA**	**NA**	**20%**	**33%**	**-**
% enterprises			2023	2023	
Cloud	**40%**	**40%**	**35%**	**39%**	**-**
% enterprises	2021	2021	2023	2023	
Artificial intelligence	**5%**	**5%**	**6%**	**8%**	**-**
% enterprises	2021	2021	2023	2023	
AI or cloud or data analytics ([3])	**NA**	**NA**	**43%**	**55%**	**75%**
% enterprises			2023	2023	2030
Digitalisation of public services					
Digital public services for citizens	**75**	**76**	**76**	**79**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Digital public services for businesses	**81**	**84**	**84**	**85**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Access to e-health records	**NA**	**47**	**51**	**79**	**100**
Score (0 to 100)		2022	2023	2023	2030

(1) The 20 million target represents about 10% of total employment.
(2) The fibre to the premises coverage indicator is included separately as its evolution will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.
(3) At least 75% of EU enterprises have taken up one or more of the following, in line with their business operations: (i) cloud computing services; (ii) big data; (iii) artificial intelligence.
Source: Digital Economy and Society Index
Source:

According to a study by SAP and Ipsos ([78]), more than half of medium and large Czech enterprises have a team dedicated to digital transformation. Czechia contributes to European research and experimentation in digital technologies. In 2022, a leading technological centre in Ostrava – IT4Innovations – installed a new supercomputer (Karolina), which is one of the 30 most powerful supercomputers in Europe. In 2022, 4.7% of enterprises in Czechia reported ICT service outage due to cyberattacks (e.g. ransomware attacks, denial of service attacks). Over the same year, 17.7% of enterprises developed or reviewed their ICT security policy within the previous 12 months.

([78]) https://news.sap.com/cz/2022/12/firmy-v-cesku-planuji-investovat-pres-60-miliard-korun-do-digitalizace-do-roku-2025/

Czechia is stagnating on the digitalisation of public services. The indicators on the digitalisation of public services for citizens and businesses are the same as last year. A new government agency is expected to steer the digitalisation of the central administration. Czechia has notified three electronic identification (eID) means to the European Commission under the eIDAS Regulation. The country is following an ambitious strategy and is planning to increase the use and popularity of e-government solutions by allowing citizens to carry ID cards or driving licences in a mobile app instead of physical cards. However, the access to e-health records is low with a score of 51 out of 100, whereas the EU average score is 79.

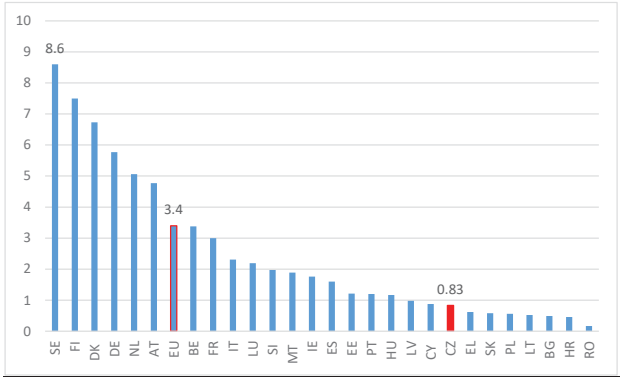
This Annex provides a general overview of the performance of Czechia's research and innovation system, which is essential for delivering the twin transition and ensuring long-term competitiveness.

Czechia is a 'moderate innovator' but the gap between its performance and the EU average is narrowing. According to the 2023 edition of the European Innovation Scoreboard ([79]), its innovation performance increased by 21 percentage points since 2016, at a higher rate than the EU's (8.5pp). However, its overall performance remains slightly below the EU average (94.7% of the EU performance).

R&D intensity ([80]) declined in 2022 after yearly growth since 2016. It reached its peak (2% of GDP) in 2021 but decreased to 1.96% in 2022 and remains below the EU average (2.24%). The past growth was mainly due to a steady increase in business enterprise expenditure on R&D (BERD) reaching 1.26% of GDP in 2022 (compared to 1.47% of the EU average) ([81]). By contrast, public expenditure on R&D as a percentage of GDP continues to decrease (0.74% in 2021 to 0.69% in 2022) and remains slightly below the EU average of 0.73%. While it can be expected that R&I investments from both the Recovery and Resilience Facility (RRF) and the Cohesion Funds will contribute in the coming years, more and consistent effort is needed to reach the national target of 3% for 2030 ([82]).

Despite a solid industrial and research base, the scientific & technological outputs do not sufficiently mirror the system's potential. The overall R&I performance requires further improvement to achieve its national goal ([83]) to move up to the 'innovation leaders' group ([84]). As shown in Figure A11.1 below, patent applications remain well below the EU average (0.83 per billion of GDP in 2020 vs 3.4). The share of scientific publications among the top 10% most cited publications experienced substantial year-on-year increases between 2019 and 2020 but remains low in comparison to the EU average (5.6% in 2020 vs 9.6%). Current policy papers ([85]) contain some measures to direct reform processes and a new R&I legislative act is under preparation. Their timely and accurate implementation could help achieve better results. Also, as previously observed ([86]), stronger institutional governance of R&I policy and collaboration between ministries, funding agencies and stakeholders are necessary.

Graph A11.1: **Patent applications filed under PCT per billion GDP (in PPS) in 2020**



Source: OECD

Academia-business linkages remain weak. Public expenditure on R&D financed by domestic business enterprises as a percentage of total public expenditure on R&D remains around half of the EU average (3.27% in 2021 vs 7.11%) and has declined over time. Also, Czechia lags behind the EU average in terms of researchers employed by businesses (4.3 per thousand active population vs 5.4 in 2021). The recovery and resilience plan (RRP) aims to incentivise stronger science-business linkages, chiefly by continuing the existing support schemes ([87]). There remains the need to

([79]) 2023, European Innovation Scoreboard (EIS), country profile: Czechia, ec_rtd_eis-country-profile-cz.pdf (europa.eu). The EIS provides a comparative analyses of innovation performance in EU countries.

([80]) R&D intensity is defined as gross domestic expenditure on R&D as a percentage of GDP.

([81]) In the business sector, the majority (63%) of R&D funding was spent in 2021 by private foreign-controlled enterprises according to the Analysis_of_the_state_of_RDI_2021_web01(2).pdf.

([82]) Czechia's innovation strategy for 2019-2030 sets targets for increasing R&D funding (by 2% by 2020, 2.5% by 2025 and 3% by 2030).

([83]) Set in the national research, development and innovation policy of the Czech Republic 2021+ (NRDIP 2021+)

([84]) Group of Member States with the highest performance according to the European Innovation Scoreboard.

([85]) E.g. NRDIP 2021+ and Innovation Strategy of the Czech Republic 2019–2030.

([86]) ST 8174/20 - COM(2020) 503 final and Country report 2020.

([87]) Cooperation of SMEs with a public research organisation under National Centres of Competence.

Table A11.1:**Key innovation indicators**

Czechia	2010	2015	2020	2021	2022	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	1.33	1.92	1.99	2	1.96	*2.24*
Public expenditure on R&D as % of GDP	0.55	0.87	0.77	0.74	0.69	*0.73*
Business enterprise expenditure on R&D (BERD) as % of GDP	0.75	1.04	1.21	1.25	1.26	*1.48*
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	5.06	:	:	*9.6*
PCT (Patent Cooperation Treaty) patent applications per billion GDP (in PPS)	0.7	1	0.83	:	:	*3.4*
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	5.3	6	7	7.5	7.9	*7.6*
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.016	0.03	0.025	0.024	0.023	*0.054*
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	14.5	13.1	10.6	10.5	:	*16.9*
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	0.173	0.179	0.151	0.154	:	*0.204*
R&D tax incentives: foregone revenues as % of GDP	0.033	0.055	0.037	0.04	:	*0.104*
Green innovation						
Share of environment-related patents in total patent applications filed under PCT (%)	15.1	7.1	16.3	:	:	*14.7*
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.02	0.003	0.009	0.022	0.033	*0.085*
Employment share of high growth enterprises measures in employment (%)	:	15.81	10.86	:	:	*12.51*

(1) EU average for the last available year or the year with the largest number of country data.
Source: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical Database), Invest EU

structurally improve the transfer of technology and knowledge from academia to businesses, e.g. by enhancing the effectiveness of technology transfer offices ([88]). The scope of the Horizon Europe Policy Support Facility to support science-business linkages is under discussion, and if implemented should support this reform process.

The framework conditions for businesses to innovate and invest in R&D require continuous attention and improvements. Although the situation has improved over the years as regards access to finance, many young and dynamic Czech firms lack sufficient sources of funding suited to their needs ([89]). Start-ups and scale-ups play a critical role in fostering innovation, but data show that the number of start-ups has stagnated since 2012. These weaknesses are caused by various factors, such as the low availability of venture capital, which is below the EU average (0.022% of GDP in 2021 versus the EU average of 0.085%) (see also Annex 12) or the lack of highly skilled and qualified workforce ([90]). The latter is illustrated by the decreasing number of graduates in science and engineering ([91]). The amended RRP includes top-up investments to foster innovation in companies, new investment to support access to finance in the strategic technologies sectors and reform helping the harmonisation of rules for granting public R&I support. To further improve the innovation potential and the relevant framework conditions it is essential to swiftly design and implement measures taking into account findings from recent studies ([92]). Also, regulatory measures such as effective tax relief, employee share options, compliance exemptions, sandboxes and open-source initiatives are needed to improve the quality of the innovation and start-up ecosystems ([93]). This could improve innovation

([88]) Innovation diffusion in the Czech Republic (oecd.org).

([89]) P.94, 2023 OECD Economic Surveys CZECH REPUBLIC e392e937-en.pdf (oecd-ilibrary.org).

([90]) Domestic companies often have difficulties in competing with foreign companies for the workforce on the market.

([91]) New graduates in science and engineering per thousand population aged 25-34 (14.5 in 2011 vs 10.5 in 2021).

([92]) INKA 3: Výsledky 3. kola mapování inovačních kapacit - Technologická agentura ČR (tacr.cz).

([93]) Startup Nations Standard. Report 2023.

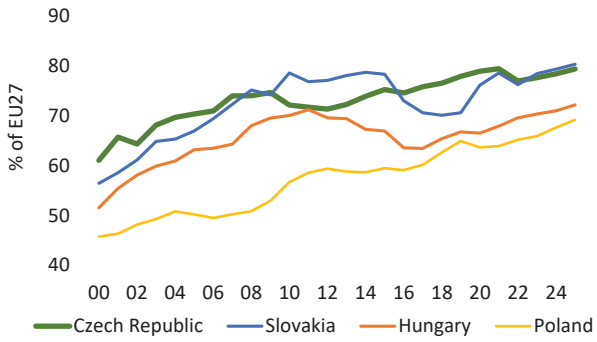
diffusion and instigate aspirations of domestic companies for higher order innovation.

Multiple crises continue to pose challenges for the Czech economy and its competitiveness. In 2023, Czechia was the only EU country not to exceed the real GDP pre-pandemic level of 2019. Its economic growth slowed considerably, reflecting significant increases in energy and other commodity prices and disruptions in global value chains. Industrial producer prices increased by 24.3% year-on-year on average in 2022 and by a further 5% in 2023 ([94]). Industrial production fell by 0.4% in 2023 compared to 2022 ([95]), recording the weakest performance since 2020. Despite the recovery in the automotive sector (production increased by 16.1%), energy intensive industries such as metallurgy and foundry saw one of the biggest declines (14.4%). In addition, geopolitical tensions and specific features of the industrial structure of the Czech economy and its exports have demonstrated the need to build a resilient economic base by addressing its structural challenges in order to stay competitive in the EU and in the global market.

Accelerating the twin transition and boosting productivity are key to competitiveness. Even though Czechia's overall position in the IMD World Competitiveness Ranking 2023 has improved compared to 2022, the economic performance indicator shows a significant decline (falling from 18th in 2022 to 27th in 2023) ([96]). In the 2023 Global Innovation Index ([97]), Czechia ranked 31st, down 7 places compared to 2020. A favourable business environment, including by simplifying the construction and permitting processes for renewable energy sources and timely investments in clean technologies will be crucial for maintaining Czechia's competitiveness at European and global level.

Labour productivity growth is stagnating in Czechia, slowing down the catching-up process with the EU average labour productivity. Even though Czechia was a leader in hourly productivity within the Visegrad countries in the last years, it reached only 77.6% of the EU average level in 2023 (in purchasing power standards) and remained below its direct peer Slovakia (78.4%) (Graph A12.1). This highlights further potential for productivity growth. In 2023, the productivity growth relied exclusively on capital deepening. Total factor productivity growth continues to be above the EU average (110.3% in Czechia in 2023 vs 108.5% in the EU, [2006=100]) but it has shown a downward trend in recent years ([98]).

Graph A12.1: **Hourly productivity in purchasing power standards (% of EU-27)**



Source: European Commission calculation based on AMECO

Productivity significantly varies across sectors, with construction recording the worst performance. The most significant and long-lasting declining trend in productivity was in the construction sector (Graph A12.2). Considerably higher construction work prices (12.4% year-on-year in 2022 and 43.7% in April 2023 compared to 2015) ([99]), low demand and lengthy construction permitting procedures can partially explain the situation. Industry performed worse than the EU average in 2023, with a productivity decline of -0.6% compared to an average of +3.5% in the EU ([100]). The stagnating economy is likely caused by the fact that growth based on factors such as low wages and foreign direct investment has lost momentum ([101]).

([94]) Indexy cen výrobců - prosinec 2023 | ČSÚ (czso.cz)

([95]) Český statistický úřad, 6/2/2024

([96]) World Competitiveness Ranking 2023

([97]) Global Innovation Index 2023

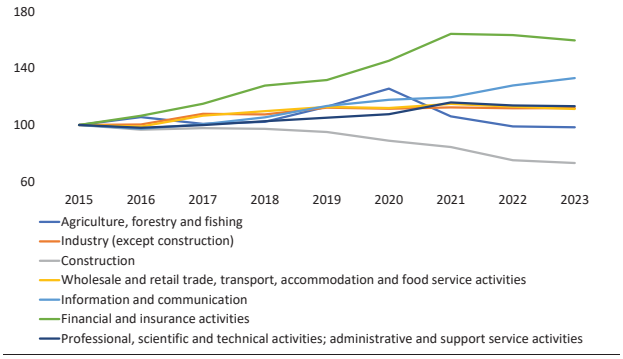
([98]) European Commission calculations based on AMECO.

([99]) Česká spořitelna, Current situation in the Czech construction industry, June 2023.

([100]) Eurostat (nama_10_lp_a21)

([101]) Czech Chamber of Commerce, Economic threats to the Czech Republic: Competitiveness, August 2023.

Graph A12.2: **Labour productivity by sector [2015=100]**



Source: Eurostat

With its diverse manufacturing capabilities and high degree of economic complexity, the Czech industry could better seize the opportunity afforded by the green transformation. Industry accounts for 25% of GDP, 84% of exports and more than 28% of employment in Czechia. Czech factories are often referred to as 'assembly plants' but can be largely seen as the drivers of innovation. According to the Ministry of Industry ([102]), almost 60% of domestic industrial production falls into the 'high-tech' or 'medium high-tech' segment.

Czechia has solid entry conditions to produce clean strategic technologies. In some sectors it already has a relatively strong position (production of heat pumps), in others it could build on the existing developing projects (R&D in solar technologies, battery energy storage) or use its strong traditional industrial base (solar thermal collectors, mechanical components for wind energy, electrical engineering for batteries and accumulators) and accelerate their development and manufacturing capacities (see Annex 7). The hydrogen sector is in its infancy stage in Czechia. Some companies are already operating in this sector but given its high potential for the decarbonisation of the economy, especially in freight road transport, more could be done.

For the automotive industry – the key pillar of the Czech economy – research, development and the production of car batteries will be decisive. Czechia has recognised e-mobility and the battery industry as a new strategic sector for the economy. The Cínovec lithium mining project is a significant opportunity for Czechia to create jobs, diversify its economy, secure its energy supply and become a leader in the European battery industry. It involves the largest lithium deposit in Europe, representing 3-5% of the world's total lithium reserves. The final feasibility study for the entire technology park is expected to be completed in the first half of 2024, to be followed by the permitting procedure. If the project proves to be economically viable, the plan is to start construction in 2025 and produce lithium carbonate in 2028. The full value chain, from lithium/manganese mining and processing, battery and electric vehicle manufacturing to recycling processes, can be developed. Intensifying public dialogue on the conditions under which raw materials can be sustainably extracted, processed and recycled is an important factor in raising awareness about the importance of raw materials for the green and digital transition in Czechia and the EU.

Czech businesses are well integrated into the single market and global value chains. Czechia's trade integration is above the EU average, expressed as a share of imports and exports to national GDP (48.3% in Czechia vs the EU average of 42.9%). However, as the Czech economy is dependent on international trade and relies on exports, particularly in automotive and other manufacturing, a decline in global demand has a direct impact on its economic growth. In 2023, material shortages were reported by 27% of Czech companies compared to the EU average of 17%, which represents the fourth largest share in the EU, hampering production and further growth. The transition to an economy with higher added value and innovation intensity would help build a more resilient economy less vulnerable to external shocks.

Czechia could further benefit from the single market. According to its conformity deficit indicator, Czechia has had the fourth highest average of incorrectly transposed single market directives in the EU in the last 5 years. The Single Market Scoreboard indicates scope for further improvement, also on the number of ongoing infringement procedures, which are above the EU average (29 in Czechia vs 25.9 in the EU in 2023) ([103]), delaying implementation of the single market rules. In 2023, Czechia solved 76% of the

([102]) Ministerstvo průmyslu a obchodu, Analýza vývoje ekonomiky ČR, červen 2023

([103]) Single Market Scoreboard 2023.

SOLVIT cases it handled as lead centre, below the EU average of 88.3%.

Regulated professions remain one of the problematic areas of the single market for Czechia. Regulatory restrictiveness in Czechia is higher than the EU average for the regulated professions of lawyer, architect, estate agent and civil engineer ([104]). Lawyers in Czechia are subject to legal form, incompatibility rules and multidisciplinary restrictions, all of which could affect the potential of this sector to innovate and roll out digital solutions and new business models. It is also important to consider the impact of the shareholding and/or company form restrictions for architects. The property services currently reserved exclusively for estate agents would benefit from the possibility of opening access to other professionals. The fragmented system that regulates civil engineers could hinder the free movement of professionals, and the rules spreading responsibility over different categories of professionals in the same area of activity could affect the efficiency of service provision.

Czechia is in the intermediate stage of implementing the components needed to connect to the Once-Only Technical System (OOTS) ([105]). As part of the Single Digital Gateway Regulation ([106]), the system will enable the automated cross-border exchange of evidence between competent authorities, improving online access to information, administrative procedures and assistance within the EU. The onboarding of Czech competent authorities is crucial for the system to function smoothly and to reduce administrative burden.

Czechia displays mixed results on innovation. A relatively high share of its GDP (5.8%) was invested in intellectual property in 2022, the fifth largest among EU Member States. However, in terms of patent applications and grants it lags behind competitors from the most developed countries. According to the European Patent Office, the number of patents granted in 2022 fell considerably to 85, compared to 172 in 2019 ([107]). Czechia could further benefit from the unitary patent system ([108]), which it does not participate in yet. The system entered into force in June 2023 to reduce complexity and costs for companies (see Annex 11).

Streamlining Czechia's regulatory framework could make it easier to do business. Despite improvements, challenges in the quality of the business environment persist. After the two 'anti-bureaucratic packages' were introduced in August 2022 and June 2023, the third package with 400 legal changes proposed by businesses is being prepared. This should reduce the excessive administrative and regulatory burden on businesses. Also, the mid-term evaluation of the SME Support Strategy in the Czech Republic 2021-2027 could further improve the policy framework, reflecting current and upcoming needs of small and medium-sized enterprises (SMEs). An effective application of the 'Think Small First' and 'Digital First' principles is needed to reduce the excessive administrative and regulatory burden on businesses ([109]). In addition to the need to further address regulatory burden, business associations stressed the labour shortage of skilled workers as a barrier to doing business, hindering productivity and hampering the entry of foreign companies. Further efforts to increase the relevance of up- and reskilling, especially in the transition sectors, are needed to support the transition towards a green economy (see Annex 8 and Annex 14).

The slow construction permitting process continues to be one of the biggest barriers to the Czech economy. It is a limiting factor for foreign investments as well as for Czech companies' decisions about further investments. While there is a lack of data on permitting speed, according to a survey ([110]), the main reasons for the lengthy construction permitting procedures are low administrative capacity in the fragmented building offices, the lack of a methodology to unify the procedures of the relevant authorities and construction authorities, often conflicting requirements from the authorities, requirements to supplement the opinions, but also unresolved property rights relations. Shortening the permitting

([104]) European Commission recommendation on professional regulations, COM(2021)385.

([105]) Regulation (EU) 2022/1463.

([106]) Regulation (EU) 2018/1724.

([107]) European Patent Office

([108]) Unitary Patent system

([109]) Startup Nations Standard. Report 2023

([110]) Czech Chamber of Chartered Engineers and Technicians Engaged in Construction, January 2024.

process for energy and transport infrastructure as well as residential housing is an essential condition for their realisation.

There is untapped potential to further digitalise the economy. By accelerating its effort to digitalise public services, Czechia could streamline the procedures to reduce the administrative burden on businesses. However, the lack of ICT specialists remains an obstacle that hampers the digitalisation not only of public administration, but also of businesses. 77% of Czech firms have reported difficulties in hiring ICT specialists, which is significantly higher than the 63% EU average ([111]) (see Annex 10). Facilitating access to advanced technologies and strengthening policies to encourage the digitalisation of businesses, especially SMEs, through sustained and complementary measures could reap the benefits of digital transformation and increase productivity.

The conditions for entrepreneurs are deteriorating on the back of insolvencies and late payments. The number of entrepreneurs in insolvency has been steadily declining in the past 3 years. However, the trend was reversed in 2023, with an increase for the first time since 2019. Out of more than 35 000 entrepreneurs in insolvency, almost 90% are self-employed. High inflation, low demand and high interest rates are among the reasons. The most affected sectors are the food industry, wholesale, construction and road freight transport ([112]). Late payments hamper the competitiveness and resilience of small businesses in Czechia. The share of SMEs experiencing late payments in the past 6 months increased in 2023, reaching almost 65%, the fourth worst in the EU. This was well above the EU average of 48.7%.

Further improvements are needed on access to non-bank finance and venture capital. The domestic venture capital market cooled off significantly in 2023. According to Czech Founders, total investment in Czech start-ups fell by 86.5% in 2023 to EUR 204 million (there had been a year-on-year rise of 58.8% in 2022 to EUR 1.51 billion). The drop last year was because start-ups postponed further funding rounds due to the unfavourable macroeconomic situation. A significant rebound is expected in 2024 ([113]). Also, new venture capital/pre-seed investments in strategic and technological areas and the possibility to offer an innovative quasi-equity product by the National Development Bank (NDB) under the amended recovery and resilience plan could help create more favourable conditions for financing start-ups and growing businesses.

The increase of the NDB's role in the Czech economy together with the wider use of EU financial instruments could improve access to finance for SMEs and help kick-start investments in Czechia. In 2023, the NDB became an implementing partner of the InvestEU programme with the potential to guarantee a significantly larger volume of operating and investment loans, especially to SMEs. If the national promotional bank is strengthened in terms of capital while a larger share of EU funds in Czechia are distributed through financial instruments, the NDB can serve as an important catalyst for economic growth. This is currently not the case. In 2022, the NDB provided new financing equal to 0.2% of Czech GDP, while best practice for national promotional banks in the EU Member States ranges from 2% to 4% ([114]). Also, the share of financial instruments in 2014-2020 European structural and investment funds in Czechia was only 4% compared to the EU average of 9% ([115]) (see Annex 17).

The adoption of the new Public Procurement National Strategy (PPNS) and its action plan represents a significant step forward in strengthening public procurement efficiency, in particular in implementing sustainable goals, promoting innovation and professionalisation of public buyers. Implementation of the measures included in the strategy and the reduction of targeted administrative burden are expected to improve competition on the public procurement markets

([111])Digital Decade Country Report 2023, Czechia.

([112])Imper, Database of entrepreneurs Merk.cz

([113])Data from Czech Funding&Exits Startup Database and the upcoming Impact Report 2023.

([114])Národní rozvojová banka Quo Vadis, presentation at the conference Financial Instruments under the shared management funds, Prague, 22 February 2024.

([115])Summaries of the data on the progress made in financing and implementing financial instruments for the programming period 2014-2020 in accordance with Article 46 of Regulation (EU) No 1303/2013 of the European Parliament and of the Council.

and address persistent challenges such as the lack of interest by companies, as indicated by the rate of single bid procedures, which remained high in 2023 (40% vs 28.6% in the EU) ([116]). The amendment to the Public Procurement Act that entered into force in July 2023 also aims to further reduce the administrative burden on both contracting authorities and suppliers. Despite these efforts to improve the efficiency of public procurement, the rate of contracts awarded directly without publication (10% vs 8.1% in the EU), remains unaddressed. A key element of improving the efficiency of public procurement is linked to attracting and developing talent in public administrations (see Annex 13). Also, the practical implementation of sustainability-oriented approaches will depend very much on political support. Moreover, the negative perceptions among practitioners about the risks related to the use of environmental and social aspects is one of the main obstacles to leveraging strategic procurement. To tackle these obstacles, the Sustainable Procurement Action Plan, one of the implementation measures of PPNS, is in preparation. It will set minimum responsible public procurement standards for selected subject matters and could help procurement practitioners to put responsible public procurement in practice.

([116])The currently available data is preliminary. Due to the technical preparation of a new public procurement platform, only the regular data available in Tenders Electronic Daily (TED) has been taken into account. For 2022 data, see the Single Market Scoreboard: https://single-market-scoreboard.ec.europa.eu/business-framework-conditions/public-procurement_en

Table A12.1: **Industry and the Single Market**

Czechia							
POLICY AREA	**INDICATOR NAME**	**2019**	**2020**	**2021**	**2022**	**2023**	**EU27 average***
HEADLINE INDICATORS							
Economic Structure	Net Private investment, level of private capital stock, net of depreciation, % GDP[1]	6.6	4.2	4	5	5.1	**3.8**
	Net Public investment, level of public capital stock, net of depreciation, % GDP[1]	0.6	0.8	0.7	0.6	1	**1.2**
	Real labour productivity per person in industry (% yoy)[2]	2.8	-6.6	4.2	1.6	0.8	**-1.24**
Cost competitiveness	Nominal unit labour cost in industry (% yoy)[2]	2.7	4.8	3.3	11.1	9.7	**9.83**
SINGLE MARKET							
Single Market integration	EU Trade integration, % (Average intra-EU imports + average intra EU exports)/GDP[2]	50.4	47.4	50.4	52.2	48.3	**42.9**
Compliance	Transposition deficit, % of all directives not transposed[3]	0.8	1.5	2.4	1.4	0.9	**0.7**
	Conformity deficit, % of all directives transposed incorrectly[3]	1.7	2	2.3	2.1	1.7	**1.1**
	SOLVIT, % resolution rate per country[3]	100.0	92.0	82.4	94.9	76.0	**88.3**
	Number of pending infringement proceedings[3]	31	29	31	33	29	**25.9**
Restrictions	EEA Services Trade Restrictiveness Index[4]	0.05	0.05	0.05	0.05	0.05	**0.05**
Public procurement	Single bids, % of total contractors[3]	50	41	40	42	40	**28.6**
	Direct Awards, %[3]	9	9	10	10	10	**8.1**
ECONOMIC STRUCTURE							
Shortages	Material Shortage (industry), firms facing constraints, %[5]	20.9	11.4	35.6	46.7	26.9	**17.2**
	Labour Shortage using survey data (industry), firms facing constraints, %[5]	38.4	18.9	22.7	23.6	19.7	**23.3**
	Vacancy rate, % of vacant posts to all available ones (vacant + occupied)[2]	7.825	6.9	6.4	6.0	4.6	**2.5**
Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials[6]	0.19	0.17	0.2	0.22	0.22	**0.22**
	Installed renewables electricity capacity, % of total electricity produced[2]	0.2	0.2	0.2	0.3		**50**
BUSINESS ENVIRONMENT - SMEs							
Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle[7]	17.2	21.7	14.6	10.0	4.0	**22.2**
Business demography	Bankruptcies, Index (2015=100)[2]	-	-	-	-	-	**105.6**
	Business registrations, Index (2015=100)[2]	-	-	-	-	-	**120.2**
Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment[8]	-	3	11	9	15	**15**
	Payment gap - public sector, difference in days between offered and actual payment[8]	-	-1	10	9	17	**16**
	Share of SMEs experiencing late payments in past 6 months, %[9]	74.2	55.8	62.3	61.1	64.5	**48.7**
Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1[10]	0.46	0.33	0.37	0.34	-	**0.49**
	EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1[10]	0.06	0.05	0.17	0.07	-	**0.17**

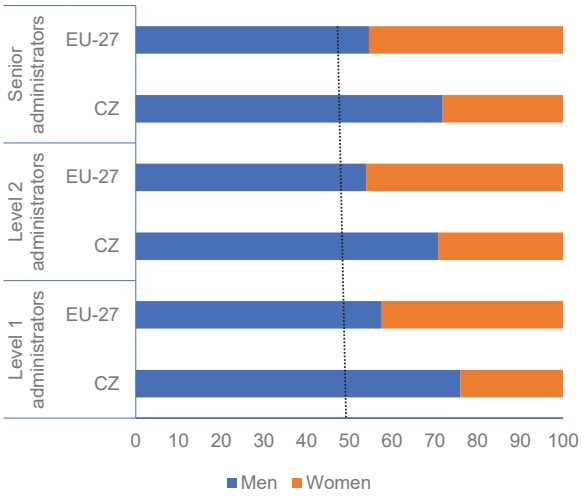
Source: (1) AMECO, (2) Eurostat, (3) Single Market Scoreboard, (4) OECD, (5) ECFIN BCS, (6) COMEXT and Commission calculations, (7) EIB Investment Survey, (8) Intrum Payment Report, (9) SAFE survey, (10) EIF SME Access to Finance Index.

Czechia's public administration is essential for the economy's competitiveness by, in particular, shaping the conditions for the twin transitions and creating a favourable business environment. The overall perception of government effectiveness has remained stable and close to the EU average ([117]). The size of the Czech public administration is below the EU average both in expenditure and numbers employed ([118]). Czechia continues to modernise its public administration through the 'Client-oriented public administration 2030' strategy. Czechia's revised national recovery and resilience plan (RRP) has put greater focus on digital government with more investments in the digital public administration systems' cybersecurity and measures to increase access to open data.

Czechia's overall e-government maturity is below the EU average. However, the population's digital interaction with the government is above (Table A13.1). Against this backdrop, Czechia has taken steps to strengthen coordinating the digitalisation of public services. New legislation will allow for the use eIDs (for example, mobile IDs instead of the current plastic ID cards). The Citizen Portal was redesigned in 2023 to simplify access to available e-services.

The attractiveness of the public administration as an employer and keeping staff continue to be challenges, particularly for specialised jobs. The amendments to the Civil Service Act entered into force in 2023, bringing in set terms of office for senior civil servants, faster recruitment processes and wider options to attract external applicants. The fragmentation of human resource management and of human resource data, however, hinders a more systemic approach to talent management. The attractiveness of the civil service is also hindered by its wages, which are lower than in the private sector for comparable education levels and have declined in real terms by more than 10% compared to 2004 ([119]). New RRP measures include piloting a human resource IT system and development programmes for managers and specialists. While Czech public administration employees are relatively young, the ratio of 29-49 to 50-64 year olds has decreased (Table A13.1). The downward trend of gender parity in senior management positions and in other administrator categories continues and is one of the lowest in the EU (Graph A13.1).

Graph A13.1: **Share of women and men in management positions (2023 data)**



Source: European Institute for Gender Equality

Czechia has taken steps to improve the use of evidence in policymaking. In view of the commitments under the RRP, new requirements for *ex post* regulatory impact assessments that take sustainability into account ([120]) have been developed and will be applied as of 2025. Newly created analytical units in central government will increase analytical capabilities. However, there are still challenges related to the use of data, whole-of-government coordination, municipal coordination, and stewardship at political level, which affect the consistent implementation of strategies and priorities ([121]). Due to the high territorial fragmentation, linked to the highest number of municipalities per capita in the EU, policy coordination among municipalities is crucial for efficiency of public services. This holds, in

([117])Worldwide Governance Indicators, 2022 data.

([118])OECD (2021), Government at a Glance 2021, OECD Publishing, Paris, https://doi.org/10.1787/1c258f55-en.

([119])https://idea.cerge-ei.cz/files/IDEA_Studie_2_2022_Statni_zamestnanci_a_urednici/files/extfile/IDEA_Studie_2_2022_Statni_zamestnanci_a_urednici.pdf

([120])The Regulatory Impact Assessment guide is available at: https://ria.vlada.cz/wp-content/uploads/Obecne-zasady-pro-RIA-2023.pdf.

([121])OECD (2023), *OECD Public Governance Reviews: Czech Republic: Towards a More Modern and Effective Public Administration*, OECD Public Governance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/41fd9e5c-en.

Table A13.1:**Public administration indicators**

CZ	Indicator ([1])	2019	2020	2021	2022	2023	EU-27([2])
E-government and open government data							
1	Share of internet users within the last year that used a public authority website or app	n/a	n/a	n/a	86.0	76.7	75.0
2	E-government benchmark overall score ([3])	n/a	62.7	62.6	63.8	68.5	75.8
3	Open data and portal maturity index	0.6	0.7	0.7	0.9	0.9	0.8
Educational attainment level, adult learning, gender parity and ageing							
4	Share of public administration employees with higher education (levels 5-8, %)	45.1	43.3	45.3 (b)	47.1	44.2	52.9
5	Participation rate of public administration employees in adult learning (%)	13.5	9.3	9.9 (b)	16.2	17.8	17.9
6	Gender parity in senior civil service positions ([4])	40.6	36.6	43.4	42.0	43.6	9.2
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	2.0	2.1	2.0 (b)	1.7	1.6	1.5
Public financial management							
8	Medium-term budgetary framework index	0.5	0.6	0.6	0.6	n/a	0.7
9	Strength of fiscal rules index	1.0	1.0	1.0	1.0	n/a	1.4
Evidence-based policy making							
10	Regulatory governance	n/a	n/a	1.67	n/a	n/a	1.7

([1]) High values denote a good performance, except for indicator # 6. ([2]) 2023 value. If unavailable, the latest value available is shown. ([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]) Defined as the absolute value of the difference between the percentage of men and women in senior civil service positions.
Flags: (b) break in time series; (d) definition differs; (u) low reliability.
Source: Source: E-government activities of individuals via websites, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Labour Force Survey, Eurostat (# 4, 5, 7); European Institute for Gender Equality (# 6); Fiscal Governance Database (# 8, 9); OECD Indicators of Regulatory Policy and Governance (# 10).

areas with strong municipal competences such as construction permitting, non-tertiary education and care, and social services.

The justice system is working efficiently. The main challenge is the length of administrative cases, which was 225 days in first instance courts in 2022. However, there has been continuous improvement compared to the 265 days in 2021 and 317 in 2020. The clearance rate rose to 126% in 2022 (119% in 2021 and 113% in 2020), showing that the justice system has been successfully reducing the backlog of administrative cases. The quality of the justice system is good overall. The level of digitalisation is advanced: procedural rules enabling digital tools in courts are in place, and some digital solutions to initiate and follow proceedings, especially in civil, commercial and administrative cases, are available. The use of distance communication technology and the availability of secure electronic communication for the courts and the prosecution service have been broadened, also with the support of the recovery and resilience facility. On judicial independence, no systemic deficiencies have been reported ([122]).

There is room for strengthening Czechia's independent fiscal institution (IFI) and medium-term budgetary framework (MTBF). The value of the MTBF Index for Czechia is below the EU average (Table A13.1), dampened by the narrow coverage of the national MTBF, and the limited role given to the independent fiscal institution in the preparation of the medium-term budgetary plans. There is also scope for improving the IFI's access to information and external reviews or ex-post forecast evaluations.

([122])For more details, see the 2024 EU Justice Scoreboard and the Commission's 2024 Rule of Law Report (forthcoming).

ANNEX 14: EMPLOYMENT, SKILLS AND SOCIAL POLICY CHALLENGES IN LIGHT OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

The European Pillar of Social Rights is the compass for upward convergence towards better working and living conditions in the EU. This Annex provides an overview of Czechia's progress in implementing the Pillar's 20 principles and the EU headline and national targets for 2030 on employment, skills and poverty reduction.

The Czech labour market has one of the highest employment rates in the EU , but certain groups face challenges in entering the labour market, including women with young children, Ukrainian refugees, older workers and informal carers. Despite a slowdown in economic growth, the employment rate increased to 81.7% in 2023 (EU average 75.3%), very close to Czechia's national employment target of 82.2% by 2030. The unemployment rate is low at 2.6% in 2023 (EU average 6.1%). Expenditure on active labour market policies (ALMPs) have been relatively low historically, with limited flexibility and insufficient support for the more disadvantaged groups. Housing unaffordability limits labour mobility. At 13.9%, the gender employment gap for women of working age (20-64) remained high in 2023 (EU average 10.2%). In 2022, only 6.8% of children aged under 3 attended formal childcare (EU average: 35.9%), pointing to a shortage of childcare facilities. Parental leave of up to 3 years, the sub-optimal design of taxes and parental support, the low uptake of flexible work arrangements and gender biases also contribute to a low rate of female employment ([123]). More than 50% of employed Ukrainian refugees are in less qualified positions than they had in Ukraine ([124]), with language skills and the recognition of qualifications acting as significant barriers ([125]). in 2022 and 2023, a record number older workers requested early retirement, which is linked to the high pension indexation, which outweighed the penalty for early retirement. Finally, an estimated 200 000 – 300 000 people are providing unpaid informal care to people in need, and half of them cannot participate in full-time employment because of this ([126]).

Inflation reduces households' purchasing power. Persistent and high inflation led real wages to decline by 6.7% in 2022 ([127]) and 2.9% in 2023 ([128]), with one of the highest falls in purchasing power among minimum wage earners in the EU ([129]).

Table A14.1:**Social Scoreboard for Czechia**

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Adult participation in learning (during the last 12 months, excl. guided on the job training, % of the population aged 25-64, 2022)	21.2
	Early leavers from education and training (% of the population aged 18-24, 2023)	6.4
	Share of individuals who have basic or above basic overall digital skills (% of the population aged 16-74, 2023)	69.1
	Young people not in employment, education or training (% of the population aged 15-29, 2023)	10.1
	Gender employment gap (percentage points, population aged 20-64, 2023)	13.9
	Income quintile ratio (S80/S20, 2022)	3.5
Dynamic labour markets and fair working conditions	Employment rate (% of the population aged 20-64, 2023)	81.7
	Unemployment rate (% of the active population aged 15-74, 2023)	2.6
	Long term unemployment (% of the active population aged 15-74, 2023)	0.8
	Gross disposable household income (GDHI) per capita growth (index, 2008=100, 2022)	121.2
Social protection and inclusion	At risk of poverty or social exclusion (AROPE) rate (% of the total population, 2022)	11.8
	At risk of poverty or social exclusion (AROPE) rate for children (% of the population aged 0-17, 2022)	13.4
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2022)	40.00
	Disability employment gap (percentage points, population aged 20-64, 2022)	22.7
	Housing cost overburden (% of the total population, 2022)	6.9
	Children aged less than 3 years in formal childcare (% of the under 3-years-old population, 2022)	6.8
	Self-reported unmet need for medical care (% of the population aged 16+, 2022)	0.2

Critical situation | To watch | Weak but improving | Good but to monitor | On average | Better than average | Best performers

Update of 25 April 2024. Members States are categorised based on the Social Scoreboard according to a methodology agreed with the EMCO and SPC Committees. Please consult the Annex of the Joint Employment Report 2024 for details on the methodology.
Source: Eurostat

([123])EIGE (2022), Gender Equality Index 2022.

([124])https://www.mpsv.cz/documents/20142/7095934/TZ_bilance_UA_23022024_final.pdf/2cd843dc-330b-e0a2-313e-da2a6f6cfc97

([125])https://www.paqresearch.cz/post/uprchlici-posun-jazyk-prace-bydleni/

([126])https://www.mpsv.cz/documents/20142/4552532/TZ_pecujici_roku_27062023.pdf/033e480d-dfc7-d366-8e79-9c33aeea06f2

([127])https://www.czso.cz/csu/czso/cri/prumerne-mzdy-4-ctvrtleti-2022

([128])https://www.czso.cz/csu/czso/cri/prumerne-mzdy-4-ctvrtleti-2023

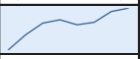
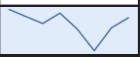
([129])https://www.eurofound.europa.eu/en/resources/article/2023/minimum-wage-hikes-struggle-offset-inflation

Czechia is facing significant labour shortages and skills mismatches. The job vacancy rate was 3.4% (accounting for 151 363 job vacancies) in Q4-2023, which is 0.8 percentage point below Q4-2022, but 0.9 percentage points above the EU average. The share of employers that report labour shortages as a factor limiting their production remains substantial in construction (38%), while it is lower in industry (22%) and services (12%). Quotas for workers from non-EU countries were increased in 2023, however they are still significantly lower than requested by companies. Adult participation in learning in the previous 12 months stood at 21.2% in 2022, below the EU average of 39.5% and 1.6 percentage points less than in 2016. Along with other challenges, this also undermines Czechia's potential to increase its economic competitiveness. Further efforts to increase the attractiveness and relevance of upskilling and reskilling are needed to support the transition towards a green economy (see Annex 8). Considerable efforts are still needed to achieve the national skills target of 45% of adults in training every year by 2030.

Czechia has taken steps, with the support of EU funds, to unlock the potential of women in the workforce, however significant challenges persist. In 2023, a tax relief measure was introduced for selected groups of employees working part-time. This measure aims to increase the employment of vulnerable people, who face early exits from the labour market or experience difficulties in reconciling work and family life. The Work-Life Balance Directive and the Directive on Transparent and Predictable Working Conditions were transposed via amendments to the Labour Code in September 2023. EU funds also play an important role in improving women's employment with, for example, investments from the recovery and resilience plan (RRP) and the ESF+ dedicated to increasing the capacity of childcare facilities. Czechia has taken steps, with the support of EU funds, to unlock the potential of women in the workforce, however significant challenges persist. In 2023, a tax relief measure was introduced for selected groups of employees working part-time. This measure aims to increase the employment of vulnerable people, who face early exits from the labour market or experience difficulties in reconciling work and family life. The Work-Life Balance Directive and the Directive on Transparent and Predictable Working Conditions were transposed via amendments to the Labour Code in September 2023. EU funds also play an important role in improving women's employment with, for example, investments from the recovery and resilience plan (RRP) and the ESF+ dedicated to increasing the capacity of childcare facilities. The Family Policy Strategy 2024-2030 focuses on increasing the capacity of quality and accessible pre-school childcare services.

The limited stocks of social and affordable housing are factors in the poverty and social exclusion of certain groups in Czechia. While the share of people at risk of poverty or social exclusion is low (11.8% vs the EU average of 21.6% in 2022), poverty remains concentrated in some localities and among Roma. Residential property prices have increased by 115.3% from 2015 to 2022 (EU average 48.4%) and housing costs represent 41.6% of the disposable income of low-income households (EU average 37.9%) ([130])). Social housing makes up only around 0.4% of the total stock of rental dwellings (EU average 7.5%) ([131]), creating significant challenges for vulnerable population groups. New investments in affordable and social housing are underway (with RRP support worth EUR 350 million) as are related legislation on affordable housing and a Housing Investment Advisory Hub.

Table A14.2:**Situation of Czechia on 2030 employment, skills and poverty reduction targets**

Indicators	Latest data	Trend (2016-2023)	2030 target	EU target
Employment (%)	81,7 (2023)		82,2	78
Adult learning[1] (%)	21,2 (2022)		45	60
Poverty reduction[2] (thousands)	-17 (2023)		-120	-15.000

(1) Adult Education Survey, adults in learning in the past 12 months, special extraction excl. guided on-the-job training.
(2) Change in the number of persons at risk of poverty or social exclusion (AROPE), reference year 2019.
Source: Eurostat, DG EMPL.

The Roma population in Czechia is facing significant social exclusion challenges. In 2021, 77% of Roma people and 85% of Roma children were at risk of poverty or social exclusion (both figures have increased significantly since

([130])Eighth overview of housing exclusion in Europe 2023 | Feantsa - Fondation Abbé Pierre p.107-108.

([131])https://www.oecd.org/housing/data/affordable-housing-database/housing-policies.htm, PH4.2 Social rental dwellings stock, 2011

2016). Furthermore, despite record levels of employment, in 2021 only 45% of Roma people were in work. The rate of young Roma people (aged 16-24) not in education, employment, or training (NEETs) was 47% in 2021, compared to 7% among the total population ([132]). The ESF+ is dedicating EUR 15 million to support the social inclusion of marginalised groups, which will help progress on the national target of 120 000 fewer people at risk of poverty and social exclusion by 2030, of whom at least 50000 should be children. In December 2023, 373 080 people fleeing Ukraine received temporary protection in Czechia ([133]), a quarter of whom are children. The ESF+ has supported Ukrainian people in accessing social services and social housing, with three calls for proposals worth EUR 30 million.

Access to quality community-based services remains limited for some people in need, notably women, older people and persons with disabilities. The Czech government approved the national deinstitutionalisation action plan which aims to provide more opportunities for independent living and community-based services. A government resolution was also approved that could pave the way to unlock national funding for deinstitutionalisation from 2025 onwards. Nevertheless, there remains a capacity deficit of between 15,000 to 30,000 care places (out of the current 75 000) ([134]). High reliance on residential services, a declining capacity of community-based services (from 115 000 in 2010 to 95 000 in 2022 ([135]), a fragmented and unstable financing environment and regulatory barriers to integrated social-health care are further challenges in the Czech care sector ([136]).

([132])FRA (2022), Roma Survey 2021, main results

([133])Czech Republic: Temporary Protection Dashboard (unhcr.org)

([134])https://www.cap.cz/images/Analyzy/Position_paper_LTC.pdf

([135])https://www.efektivnizdravotnictvi.cz/post/problemy-socialne-zdravotniho-pomezi-v-terennich-sluzbach---kde-brat-inspiraci-dil-1

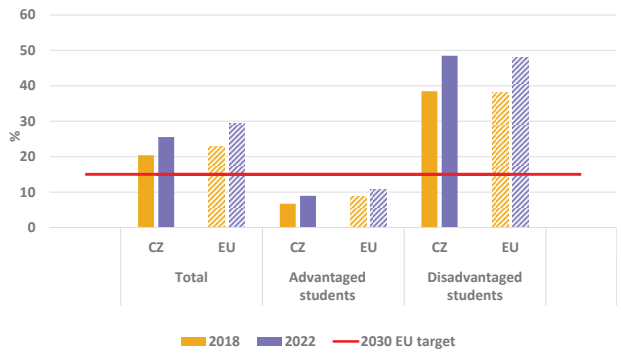
([136])https://www.apsscr.cz/media/a4-financovani-terenni-sluzby-2023-final.pdf

This Annex outlines the main challenges of Czechia's education training system based on the 2023 Education and Training Monitor and the 2022 OECD Programme for International Student Assessment (PISA) results.

Czech student performance declined in mathematics, but remained largely stable in reading and science. The 2022 PISA results ([137]) show that despite the pandemic, the share of underachievers in reading (21.3%) and science (19.9%) remained fairly stable compared with 2018, but remains above the EU target. The average reading scores of both 4th graders and 15-year-olds in Czechia are particularly stable across multiple assessment cycles (Progress in International Reading Literacy and PISA). In mathematics, the share of underachievers has increased compared with 2018 (from 20.4% to 25.5%), but still remains below the EU average of 29.5%.

The share of top-performing 15-year-olds is above the EU average in all three domains, but significant disparities exist by socio-economic status.

Graph A15.1: **Underachievement rates in mathematics by socio-economic background, PISA 2018, 2022**



Source: OECD (2023).

Students from advantaged backgrounds perform exceptionally well in mathematics. At the same time, the share of top performers among pupils with a disadvantaged background is close to the EU average. Worryingly, around half of underprivileged students (48.5% vs 48% in EU) do not meet the basic level of achievement in mathematics. Between 2018 and 2022, the proportion of underachieving students increased among the socio-economically disadvantaged, while it remained stable among the advantaged ([138]), widening the socio-economic gap. Various drivers contribute to this, such as learning losses linked to distance learning during the pandemic, which affected disadvantaged pupils disproportionately.

Czechia aims to increase the attractiveness of the teaching profession, amid growing concerns for the quality of education. An amendment of the Act on Pedagogical Staff introduced a legal indexation of the salaries of teaching staff at 130% of the average wage. However, stakeholders protested against planned cuts on school budgets, particularly affecting non-teaching staff; this led to the largest sectoral demonstration of the last 30 years. Shortages of qualified teachers are prominent in languages, mathematics, physics, engineering, tele-communications and computing ([139]). The shortage or lack of sufficiently qualified teaching staff and the limited availability of teachers to help students in need during the pandemic were associated with lower levels of pupils' mathematics performance in the 2022 PISA study.

Efforts are focused on making education more inclusive, but results are yet to be seen. Czechia is implementing various reforms under the Education Policy Strategy 2030+, but challenges still exist. The segregation of Roma children in education has increased from 29% in 2016 to 49% in 2021. There are still about 130 schools where more than a third of pupils are Roma, 60 of which are set up as special schools, with reduced learning outcomes for pupils with mild mental disabilities ([140]). In September 2023, 48 000 children from Ukraine were enrolled in compulsory education in Czechia, and the number of students from Ukraine in secondary schools increased by 40% since September 2022 ([141]). The

([137])OECD (2023), PISA 2022 Results (Volume I): The State of Learning and Equity in Education, PISA, OECD Publishing, Paris.

([138])The change among advantaged students (2.2 pps) is not significant.

([139])Ministry of Education, Youth and Sport, 2019, Main outputs from the Extraordinary Inquiry on the state of provision of teaching.

([140])PAQ and STEM, 2023, Research report.

([141])https://www.msmt.cz/ministerstvo/novinar/aktualni-pocty-ukrajinskych-uprchliku-na-ceskych-skolach

Table A15.1:**EU-level targets and other contextual indicators under the European Education Area strategic framework**

				2012		2018		2023	
Indicator			Target	Czechia	EU-27	Czechia	EU-27	Czechia	EU-27
[1]Participation in early childhood education (age 3+)			96%	76.8% 2013	91.8% 2013	86.7%	92.2%	85.4% 2021	92.5% 2021,d
[2]Low-achieving 15-year-olds in:		Reading	< 15%	16.9%	18.0%	20.7%	22.5%	21.3% 2022	26.2% 2022
		Mathematics	< 15%	21.0%	22.1%	20.4%	22.9%	25.5% 2022	29.5% 2022
		Science	< 15%	13.8%	16.8%	18.8%	22.3%	19.9% 2022	24.2% 2022
Early leavers from education and training (age 18-24)	[3]Total		< 9 %	5.5%	12.6%	6.2%	10.5%	6.4%	9.5%
	[3] By gender	Men		6.1%	14.5%	6.4%	12.1%	6.4%	11.3%
		Women		4.9%	10.6%	6.1%	8.7%	6.4%	7.7%
	[4] By degree of urbanisation	Cities		5.3% b	11.2%	5.6%	9.4%	6.5%	8.6%
		Rural areas		4.7% b	14.0%	5.3%	11.0%	4.7%	9.9%
	[5] By country of birth	Native		5.5%	11.3%	6.2%	9.2%	6.0%	8.2%
		EU-born		10.3% u	26.2%	9.6% u	22.4%	25.1% u	21.0%
		Non EU-born		8.3% u	30.1%	6.4% u	23.0%	11.0% u	21.6%
[6]Socio-economic gap (percentage points)				30.8	:	31.8	29.5	39.5 2022	37.2 2022
[7]Exposure of VET graduates to work-based learning			≥ 60% (2025)	:	:	:	:	16.1%	64.5%
Tertiary educational attainment (age 25-34)	[8]Total		45%	27.8%	34.1%	33.3%	38.7%	33.7%	43.1%
	[8] By gender	Men		23.2%	29.1%	26.3%	33.3%	26.9%	37.6%
		Women		32.8%	39.2%	40.7%	44.2%	41.1%	48.8%
	[9] By degree of urbanisation	Cities		39.6% b	43.5%	45.5%	49.0%	50.0%	53.3%
		Rural areas		19.8% b	24.8%	24.9%	27.7%	24.1%	31.7%
	[10] By country of birth	Native		27.8%	35.4%	33.1%	39.7%	32.6%	44.2%
		EU-born		26.4%	29.3%	42.2%	36.7%	57.6%	40.2%
		Non EU-born		32.6%	24.2%	34.0%	31.0%	36.0%	37.1%
[11]Participation in adult learning (age 25-64)			≥ 47% (2025)	:	:	22.8% 2016	37.4% 2016	21.2% 2022	39.5% 2022
[12]Share of school teachers (ISCED 1-3) who are 55 years or over				20.0% 2013	22.7% 2013	28.1%	23.8%	30.5% 2021	24.5% 2021

Notes: b = break in time series; d = definition differs; e = estimated; p = provisional; u = low reliability; : = data not available.
Source: 1,3,4,5,7,8,9,10,12=Eurostat; 11= Eurostat, Adult Education Survey; 2,6=OECD, PISA.

fragmentation of school governance ([142]) contributes to regional disparities in access to quality education, especially in disadvantaged areas.

Czechia continues to improve capacity and affordability in early childhood education and care. In 2021, participation in early childhood education between 3 years and the age of compulsory primary schooling (85.4%) remained well below the EU average (92.5%) and the EU-level target (96%). On a positive note, the participation of Roma children in early childhood education and care significantly increased from 24% in 2016 to 51% in 2021 (FRA, 2022). Between 2019 and 2023, 70 new kindergartens opened ([143]). The government introduced new measures to regulate preschool fees to make them more affordable (see Annex 14).

Participation in higher education is stalling and financial support for students is low. In 2023, 33.7% of adults between 25 and 34 years held a tertiary education diploma. This rate is one of the lowest in the EU (average 43.1%, target 45%), and is particularly low among men (26.9%). Between 2016 and 2021, the number of students enrolled decreased by 11.6% ([144]), beyond the impact of demographic fluctuations. A contributing factor is the low permeability of secondary education pathways leading to higher studies, combined with the early streaming of students, which limits access to tertiary education. In addition, Czechia is also among the countries that invest the least in financial support for students: 2.5% of public expenditure in tertiary education vs on average 18.8% in the EU ([145]). Stakeholders and experts have called for more investment in the competitiveness of the sector to attract and retain talent. In 2024, Czechia is preparing a funding reform to improve the success of doctoral studies.

([142])90% of municipality school founders in Czechia operate only one school, often with insufficient administrative capacity and expertise. See J. Zeman, PAQ Research, 2024.

([143])Czech School Inspectorate, 2023, Quality of Education in the Czech Republic, Annual Report 2022-23.

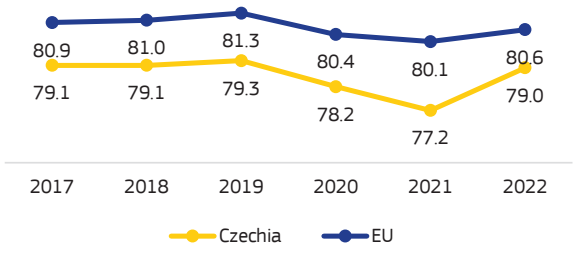
([144])Eurostat: educ_uoe_enrt02.

([145])Eurostat, educ_uoe_fina01.

A healthy population and an effective, accessible and resilient health system are prerequisites for a sustainable economy and society. This Annex provides a snapshot of population health and the health system in Czechia.

Life expectancy in Czechia was below the EU average both before and during the COVID-19 pandemic. Between 2019 and 2021, as a result of the pandemic, it dropped significantly and fell further behind the EU average. As mortality from COVID-19 declined in Czechia in 2022 ([146]), life expectancy rebounded to pre-pandemic levels and is now among the highest in the Central and Eastern EU countries, relatively close to the EU average (79.0 vs 80.6 years). Mortality rates from preventable and treatable causes are 40% higher than the EU average. In 2021, diseases of the circulatory system ('cardiovascular disease'), cancer and COVID-19 were the leading causes of mortality, accounting for over 70% of all deaths. Lung cancer remains the leading cause of cancer death. COVID-19 accounted for 17.9% of all deaths in Czechia in 2021, one of the largest proportions among all EU countries.

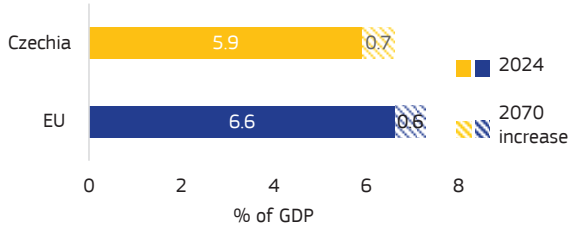
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat

Health spending substantially increased over the course of the COVID-19 pandemic, both in relation to GDP and in nominal terms. In 2021, health spending was at 9.5% of GDP, below the EU average of 10.9%. Provisional data from the OECD suggest that in 2022 total health spending fell back to 9.1% of GDP. In general, health spending per capita in Czechia (adjusted for differences in purchasing power) is around a quarter lower than the EU average. Public funding for health as a proportion of total health spending, at 86.4% in 2021, was higher than the EU average of 81.1%. Related to this, the proportion of out-of-pocket expenditure for healthcare (12.7% of health spending in 2021) is still among the lowest in the EU, and mainly takes the form of fees for outpatient pharmaceuticals. Most health spending in Czechia (based on purchasing power standard per inhabitant) goes to inpatient and outpatient care (with each accounting for around 30% of total health spending), followed by pharmaceuticals (around 16%). Based on the age profile of the Czech population, public expenditure on health is projected to increase by 0.7 percentage points (pps) of GDP by 2070, compared to 0.6 pps for the EU overall (see Graph A16.2 and Annex 21).

Graph A16.2: **Projected increase in public expenditure on healthcare over 2024-2070**



Baseline scenario
Source: European Commission / EPC (2024)

In 2021, spending on prevention in Czechia surpassed the EU average – at 8.1% of total healthcare spending, compared to 6.0% for the EU overall. From 2019 to 2021, it increased by 185%, outstripping the 106% increase for the EU as a whole. Proportionally, budget shares for prevention across the EU increased most for emergency response, disease detection and immunisation programmes. In Czechia, the main factors explaining this increase are immunisation programmes, with a 740% increase in spending, and early disease detection programmes, with an increase of around 1 100%.

Ongoing reforms aim at strengthening primary healthcare, making health services more integrated, and digitalising the health system, which may help to speed up the slow uptake of digital health solutions. For example, the number of individuals accessing personal health

([146])Based on data provided directly by Member States to the European Centre for Disease Prevention and Control, under the European Surveillance System.

Table A16.1:**Key health indicators**

	2018	2019	2020	2021	2022	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	124.2	120.3	122.5	125.9	NA	93.3 (2021)
Cancer mortality per 100 000 population	272.1	272.4	267.2	257.0	NA	235.4 (2021)
Current expenditure on health, % GDP	7.5	7.6	9.2	9.5	NA	10.9 (2021)
Public share of health expenditure, % of current health expenditure	84.9	85.0	87.7	86.4	NA	81.1 (2021)
Spending on prevention, % of current health expenditure	2.9	2.9	3.7	8.1	NA	6.0 (2021)
Available hospital beds per 100 000 population	666	663	661	666	NA	525 (2021)
Doctors per 1 000 population	4.0	4.1	4.1	4.3	NA	4.1 (2021)*
Nurses per 1 000 population	8.1	8.1	8.2	8.3	NA	7.9 (2021)
Total consumption of antibacterials for systemic use, daily defined dose per 1 000 inhabitants per day ***	NA	16.9	13.4	13.7	17.1	19.4 (2022)

Note: The EU average is weighted for all indicators except for doctors and nurses per 1 000 population, for which the EU simple average is used. Doctors' density data refer to practising doctors in all countries except Greece, Portugal (licensed to practise) and Slovakia (professionally active). Nurses' density data refer to practising nurses in all countries except Ireland, France, Portugal, Slovakia (professionally active) and Greece (hospital only).

Source: Eurostat Database; except: * OECD, ** Joint Questionnaire on non-monetary healthcare statistics, *** ECDC, **** Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach.

records online in Czechia is below the EU average, indicating a lag in the uptake of e-health and overall health systems digitalisation. Reforms also intend to restructure public health services and address the country's main preventable risk factors for ill health, including alcohol consumption (among the highest in the EU), tobacco use, obesity and exposure to environmental threats. According to a recent Eurobarometer survey, the most frequently cited obstacles to access to mental healthcare services were long waiting lists and diagnostic/ treatment delays ([147]).

The number of doctors and nurses (per 1 000 population) is slightly above the EU average. However, there are issues with the uneven geographical distribution of health workers, leading to concerns about equal access to healthcare, and with the number of nursing graduates per 100 000 population, which is well below the EU average. While densities of doctors and nurses have risen in Czechia since 2010, healthcare needs have also risen, and some hospitals report closed wards due to a lack of nurses and other healthcare workers. Comparatively high unmet needs for medical care in rural areas are reported. Moreover, around a quarter of nurses are 55 years or older, raising some concerns about the long-term accessibility of health services. The pandemic response highlighted areas for improvement in crisis preparedness and health workforce capacity, especially in some regions. Retaining and strengthening the health workforce is high on the political agenda. For example, the government has taken action to increase the number of students in medical schools and offers subsidies for opening primary care offices in underserved areas.

EU funds support substantial investment in healthcare in Czechia. Historically, investment levels in healthcare have lagged behind. Among EU countries, Czechia has invested a comparatively low percentage of GDP in gross capital formation in healthcare. This is also reflected in the low availability of key diagnostic technology (medical imaging). In 2021-2027, over EUR 665 million from the cohesion policy funds will support investment in healthcare ([148]). This investment will mainly go into health infrastructure, e-health services and applications, health equipment, and measures to increase access to health services in underserved areas and for the most disadvantaged population groups. Through its recovery and resilience plan (RRP), Czechia will invest EUR 1.22 billion in healthcare (13.25% of the RRP's total value), focusing on oncological care (in particular the setting-up of a Czech oncological institute) and intensive care services (for example, the construction of the Intensive Medicine Simulation Centre). In addition, there will be a focus on increased training for healthcare professionals, e-health and research and development.

([147])https://europa.eu/eurobarometer/surveys/detail/3032

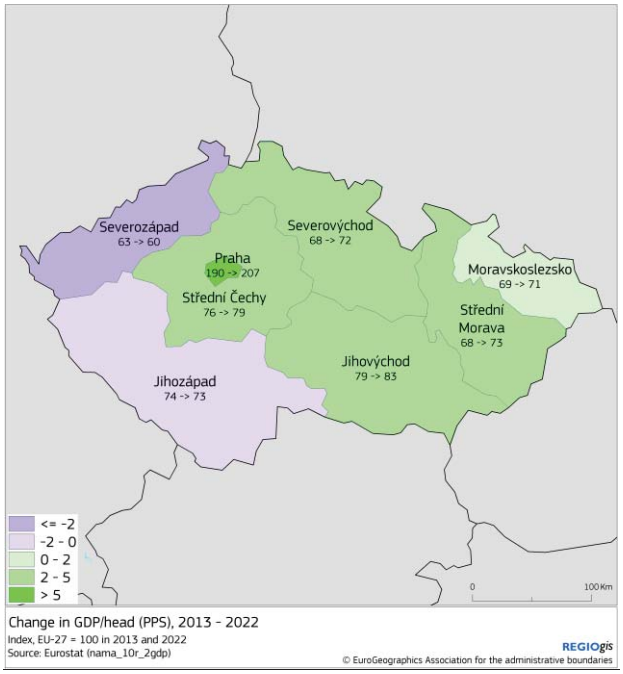
([148])The EU cohesion policy data reflect the status as of 13 May 2024.

Annex 17 showcases the economic and social regional dynamics in Czechia. It provides an analysis of the regional cohesion and assesses emerging investment needs and measures to foster economic growth, social development and competitiveness in the country.

Overview of economic and social performance at the regional level

Regional disparities in Czechia remain stable but significant. Praha is a highly-developed capital city where GDP per capita stood at 207% of the EU average in 2022. In the rest of the country, the GDP per capita of a group of six moderately developed regions ranged between 71% and 83% while the GDP per capita for the poorer region of Severozápad stood at 60% of the EU average.

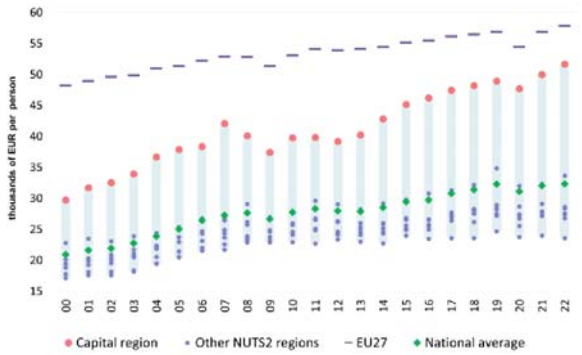
Map A17.1: **GDP per capita index in Czech NUTS 2 regions (2013-2022)**



Source: Eurostat, DG REGIO elaboration

Almost all regions are converging towards the EU average, albeit at different speeds. As a result, Czechia has continued to converge towards the EU average, from 84% of the EU GDP per capita average in 2011 to 90% in 2022. The only exception in this process of convergence was Severozápad, whose GDP per capita compared to the EU average declined between 2011 (63%) and 2022 (60%).

Graph A17.1: **Labour productivity (real GVA per worker), EU-27, Czechia NUTS 2 regions, 2000-2022**



Source: ARDECO, DG REGIO elaboration

This pattern of disparities is similar for labour productivity, displaying the same divide between the capital region and the rest of the country. The evolution of labour productivity shows that almost all regions are catching up with the EU average but again at different speeds. Real productivity growth was highest in Praha, with a 3.2% annual growth between 2013 and 2022. The other moderately developed regions experienced lower productivity growth, most of them still above the EU average (0.45%). This mixed performance at regional level led to a national productivity growth of 1.21% per year on average between 2012 and 2021.

The availability of key assets such as the transport network and connectivity remain relatively uneven and affects the development prospects of regions with less developed infrastructure. In Praha, 86% of the population living in a radius of 120 km could be reached in less than 90 minutes. In Jihozápad and Severovýchod, two transition regions, this ratio dropped to around 50%.

Human capital levels are considerably lower outside the capital region. In almost all regions, the share of population aged 30-34 with a tertiary education degree is below the EU average (42.8%), with the lowest observed in Severovýchod and Severozápad. The share is by far the highest in the Praha region, (60.6%) which reflects the unique position of the capital region in the country.

Table A17.1:**Selected indicators at regional level in Czechia**

	GDP per head (PPS)	GDP growth	Productivity (GVA (PPS) per person employed)	Transport performance by car	Population aged 30-34 with high educational attainment	R&D expenditure	At-risk-of-poverty or social exclusion	EU Regional Competitiveness Index 2.0	Population growth
	Index, EU-27 = 100 2022	Average % change on the preceding year (2013-2022)	Index, EU-27 = 100 2022	Share of population in a 120-km radius that can be reached within 1h30 (%) in 2021	% of population aged 30-34 2023	% of GDP 2021	% of population 2022	Index, EU-27 = 100 2022 edition	Average annual change per 1 000 residents (2013-2021)
Czechia	90	2.15	85.4	65.2	34.9	2.0	11.8	99.8	2.2
Praha	207	3.20	134.4	86.0	60.6	2.8	8.9	114.3	9.0
Střední Čechy	79	2.77	85.6	73.5	29.6	2.3	8.7	114.3	9.9
Jihozápad	73	1.43	71.0	54.9	32.1	1.6	10.9	93.0	2.6
Severozápad	60	0.32	65.7	64.4	26.3	0.4	17.2	86.6	0.0
Severovýchod	72	2.30	72.4	52.5	25.4	1.4	11.4	95.7	0.5
Jihovýchod	83	1.91	78.4	66.5	39.2	2.5	11.7	98.8	1.8
Střední Morava	73	1.99	72.4	57.3	31.3	1.6	11.4	95.5	-1.6
Moravskoslezsko	71	0.90	73.5	66.1	27.2	1.2	15.5	96.8	0.0

Source: Eurostat, EDGAR database

This concentration of human capital is also reflected in innovation and technology. In 2021, R&D expenditure was highest in the capital region where it stood at 2.8% of GDP (2.5% in Jihovýchod). At the other end of the spectrum, R&D expenditure was only 0.3% of GDP in the less developed region of Severozápad.

There are also differences between the less developed regions and the rest in the share of population at-risk-of-poverty and social exclusion. However, it is important to point out that in 2022 this share in Czechia (11.8%) was the lowest in the EU (21.6%).

The differences in productivity, investment, education and poverty are only partially reflected in the labour market figures. In 2022, the unemployment rate in Czechia is remarkably low (2.2%) and did not vary widely between regions.

There is a clear tendency for people to agglomerate in the most prosperous regions. Between 2013 and 2021, the population grew in all regions except for the three regions having the lowest GDP per capita in the country (-1.6% in Střední Morava, -2.3% in Severozápad and -3.6% in Moravskoslezsko). The regions of Praha and Střední Čechy showed a sharp rise in the population in the same period, 9% and 9.9%, respectively, standing well above the national (2.2%) and the EU averages (1.9%). Severozápad and Moravskoslezsko are in a talent development trap because of the drop in the working-age population and lagging tertiary education attainment levels.

EU funds are crucial for regional development. In Czechia, EU funds represent 40% of all public investments. The 2021-2027 Just Transition Fund investments in Czechia will go the Severozápad and Moravskoslezsko regions. Those structurally affected regions face a number of challenges, such as having no prospects for young people and for having a reputation of being deprived regions. These regions should therefore invest in becoming more attractive places to live and work.

Investment and subnational reform needs ahead

Different regions have different investment needs. The strategic need in the more developed regions is to support investments in the digital and green transition, in particular the R&D and entrepreneurial ecosystems. These investments there must focus on smart solutions. In the Severozápad region, the key condition for catching up is to invest in quality education, an attractive business environment and good transport links. Investments in Czechia's carbon-intensive regions should support the green transition, for instance by investing in renewable energy and energy efficiency measures. The development of local administrative capacity is vital as is giving technical assistance to applicants in the Severozápad region and preparing for a project pipeline.

The lack of administrative capacity is a significant factor preventing investment by small actors in Czechia. In order to increase absorption by small municipalities, SMEs and local

NGOs, the national authorities need to support applicants, for example through shared project managers and by providing comprehensive information in one place on applying for EU funding.

Czechia does not optimise the use of financial instruments, with only 2.5% of the 2021-2027 Cohesion Policy Funds (and 5.5% of the Czechia RRP) planned for financial instruments, as compared to the EU average of 9%. There is a reluctance to use alternative methods of financing for cost saving or to make productive investments (see also Annex 12). One of the reasons for the deeply rooted subsidy mentality of regional and local bodies is the absence of guarantees that the funds will stay in territories. Guaranteed revolving funds would be an incentive for a broader uptake of the funding opportunities.

The Czechia regions should have stronger role in defining their specific needs. The socio-economic development of the regions would benefit from dedicated financial injections supporting long-term growth, such as targeted fiscal stimulus. The potential of integrated tools should be used to a greater extent in the Czechia programmes. The regions appreciate the integrated territorial tools implemented through Integrated Territorial Investments and Local Action Groups. Methodological and financial support for the development of specific short and mid-term strategic planning at local and regional level would be appropriate. The Territorial Just Transition plans could serve as a good example.

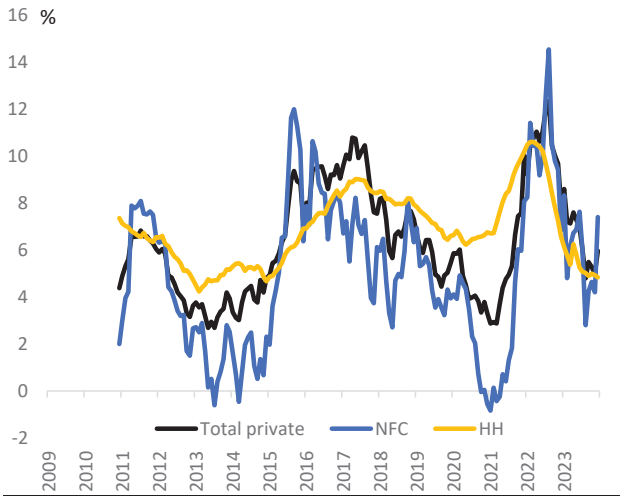
Czechia's financial sector is predominantly bank-based, with a high degree of foreign ownership. The total assets of the country's banking sector were equivalent to 130.6% of GDP in September 2023, representing circa 80% of the financial sector in terms of assets. Almost 90% of all assets in the country's banking sector belonged to foreign-controlled entities.

Czech banks remain robust and above the EU average in terms of size and quality of capital. Banks' overall capital ratio slightly improved in the first 9 months of 2023 to 20.4%, and their common equity Tier 1 ratio remained strong at 18.7%. On both of these measures, Czech banks are ahead of the EU average. The recent decisions by Czechia's central bank, the Czech National Bank (CNB), to lower the countercyclical capital buffer rate of Czech banks first to 2% from 2.5% as of 1 October 2023 and again to 1.75% as of 1 April 2024, should further increase banks' capital management buffers above minimum capital requirements. Banks are expected to meet the binding target set for the minimum requirement for own funds and eligible liabilities (MREL) as of 1 January 2024 thanks to their efforts in 2023 to increase MREL-eligible liabilities and, partly, via the use of own funds.

Following a strong 2022, banks' net profitability has since been more subdued but remains solid. At 15.2%, return-on-equity continues to be well above the EU average of 9.9% as of September 2023. However, the banking sector's net profit for the first 8 months of 2023 was only marginally up year-on-year due to higher impairment losses in 2023 than in the same period in 2022. Moreover, the CNB reported lower year-on-year interest margins on new loans as of August 2023 for consumer and non-financial corporation loans. Banks' cost-to-income ratio only edged up slightly in 2023 and continues to be much lower than the EU average, supporting profits.

Credit growth is showing clear signs of deceleration. The annual rate of credit growth for households fell to 4.8% in December 2023, compared to 6.6% a year earlier. Credit growth for non-financial corporations, which had fared better in the first half of 2023, also fell sharply in the second half, registering an annual rate of 4.2% in November before rebounding to 7.4% in December (Graph A18.1).

Graph A18.1: **Evolution of credit activity**



Adjusted loans for sales and securitisations

Source: ECB

Credit risk is on the rise, but asset quality continues to be strong. Although the share of non-performing loans fell in the first 9 months of 2023 to 1.2% (vs an EU average of 1.8%), Stage 2 loans as a share of total loans and advances are again on the rise in the second half of 2023 according to EBA data, increasing to 10.1% in December 2023 from 9.7% in June 2023 and 6.4% in December 2021 ([149]). Migrations to Stage 2 come mostly from loans secured by commercial and residential property, as well as unsecured consumer credit. Moreover, in December 2023, the cash coverage ratio of Stage 2 loans deteriorated to 3.5% from 3.6% in June 2023 and5.1% in December 2021, suggesting the need for higher provisioning. Nevertheless, the risk of household insolvency connected with the refixing of mortgage rates appears manageable, given the predominance of mortgage loans with a fixation period of 5 years or longer. Although the 12-month default rate on housing loans has started to rise gradually to 0.6%, it is still well below its long-term average (2.5% in the period 2007-2022). Moreover, private debt has declined as a share of GDP, supporting borrowers' debt-servicing capacity. On commercial real estate activities, the share of domestic financing of relevant investments has increased substantially over the

([149])EBA Risk Dashboard Q3-2023.

last 5 years, suggesting greater direct exposure of the local financial sector than in the past. Loans collateralised by commercial real estate property constituted circa 43% of all loans and advances to non-financial corporations as of September 2023 ([150]). This has led banks to take a more prudent approach to lending standards and provisioning. Nonetheless, there are no signs of a material impact on banks' asset quality so far.

Despite banks' resilience, the swift increase in foreign currency loans warrants closer oversight. There continues to be a lower interest rate on euro-denominated loans than on loans denominated in Czech koruna and this has resulted in a gradual increase in the share of euro-denominated loans to 49% of all non-financial corporation loans at the end of Q3-2023 ([151]). Such loans historically have a lower default rate than koruna loans and are granted to companies with income in euro, thus providing a natural hedge to currency risk. Nonetheless, exchange-rate risk needs to be carefully monitored, as it may not be fully hedged (naturally or financially), while the level of hedging may decrease if there is a fall in export demand and therefore a decline in foreign currency income for export companies. The relatively high share of these loans to businesses also increases the importance of banks' foreign currency liquidity position. Although banks' overall liquidity position is strong, with an aggregate liquidity coverage ratio excluding state-owned institutions of 187% in June 2023, the weighted average liquidity coverage ratio in euro for the banking sector as a whole stood at 71% at the same point in time ([152]).

The real estate market went through a correction in 2023 but there are now signs of stabilisation for residential properties. Year-on-year growth in residential property prices turned negative in Q2 and Q3 of 2023 for the first time since 2012, amid subdued GDP growth and rising interest rates. Prices declined across all regions and market segments, including new buildings. However, there are now signs of a bottoming out, as price growth was slightly positive quarter-on-quarter in Q3 2023. The limited supply of properties should support prices in the future, and prices may possibly also be supported by recent tax changes ([153]). However, despite some improvement during the first half of 2023, the affordability of owner-occupied housing remains low. Higher interest rates also triggered a fall in transaction activity in commercial property in the second half of 2022 compared with the same period in 2021, and transactions in this segment have remained subdued ever since. This was due to uncertainty about the future path of rents, rising property-operating costs, and rising costs for debt financing. Newly completed space for offices is also close to historical lows. However, there are still signs of persistent overvaluation in commercial property. This entails the risk of further price reductions, at least for retail and office space, where occupancy rates are falling and growth in rents is weaker.

The CNB recently recalibrated its macroprudential policy. The CNB removed the debt-service-to-income and debt-to-income limits as of 1 July 2023 and 1 January 2024, respectively, given a perceived decrease in the level of cyclical and systemic risk associated with mortgage lending. Moreover, the CNB assessed that rising interest rates had made these measures a hard limit for a greater-than-intended range of possible borrowers. However, the CNB kept the upper loan-to-value limits unchanged, given the continuing overvaluation of residential property prices and the heightened uncertainty, which pose some, albeit lower, risk of a larger price correction.

The Czech capital market remains under-developed, but the domestic investment-fund industry is growing. The market-funding ratio has deteriorated since 2021, and was 40.9% in 2022, below the EU average of 51.8%. In 2022, the overall market capitalisation of the Prague Stock Exchange as a share of GDP fell, and the volume of corporate bonds issued in 2022 also dropped year-on-year, for the third year in a row. The degree of direct retail investment in the Czech capital markets is low, but the investment-fund industry continues to grow and now represents

([150])EBA Risk Dashboard Q3-2023, at amortised cost.

([151])Foreign currency funding may actually be higher if loans from foreign banks or intercompany loans are added.

([152])Czech National Bank, Autumn 2023, *Financial Stability Report*.

([153])An increase from 5 to 10 years in the required holding period to benefit from exemptions on the income tax paid on profits from the sale of real estate for properties acquired after 2021 may curb supply, while a VAT reduction on some new builds from 15% to 12% could potentially help demand.

Table A18.1:**Financial soundness indicators**

	2017	2018	2019	2020	2021	2022	2023	EU	Median
Total assets of the banking sector (% of GDP)	143.0	135.6	133.2	141.8	145.4	134.4	130.6	257.0	184.6
Share (total assets) of the five largest banks (%)	63.7	64.5	64.8	65.3	65.4	65.5	-	-	69.6
Share (total assets) of domestic credit institutions (%)[1]	8.3	8.6	8.9	8.2	13.4	15.3	15.6	-	62.9
NFC credit growth (year-on-year % change)	6.1	6.3	3.9	-0.6	8.1	6.8	7.4	-	2.4
HH credit growth (year-on-year % change)	8.4	7.9	6.6	6.8	10.2	6.6	4.8	-	1.4
Financial soundness indicators:[1]									
- non-performing loans (% of total loans)	2.8	2.1	1.7	1.9	1.7	1.4	1.2	1.8	1.8
- capital adequacy ratio (%)	18.1	18.3	19.7	22.1	21.2	20.3	20.4	19.6	20.1
- return on equity (%)[2]	13.0	13.3	13.9	6.7	10.6	14.4	15.2	9.9	13.2
Cost-to-income ratio (%)[1]	47.1	47.0	47.0	49.6	48.9	41.7	42.6	52.8	44.9
Loan-to-deposit ratio (%)[1]	94.9	101.9	103.9	102.1	100.6	94.1	92.2	93.3	80.2
Central bank liquidity as % of liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7
Private sector debt (% of GDP)	80.3	83.0	78.6	81.7	78.8	76.0	-	133.0	118.4
Long-term interest rate spread versus Bund (basis points)	66.3	158.5	180.1	163.9	227.8	319.0	200.4	107.7	104.2
Market funding ratio (%)	48.2	47.0	46.0	46.0	41.7	40.9	-	50.8	39.8
Green bonds outstanding to all bonds (%)[3]	-	-	-	-	-	-	-	4.0	2.7

1-3 **4-10** **11-17** **18-24** **24-27** Colours indicate performance ranking among 27 EU Member States.

(1) Last data: 2023-Q3.
(2) Data are annualised.
(3) Data available for EA countries only, EU average refers to Euro Area.
Source: ECB, Eurostat

close to 9% of total financial sector assets. Investment-fund assets increased by 14% in the first half of 2023 compared to end-2022 ([154]). Their liquidity position did not change significantly in the first half of 2023 and remains solid. In an effort to boost domestic capital markets, legislation was recently passed covering a long-term investment product which benefits from tax relief and offers an alternative to other tax-efficient long-term savings products (i.e. pension funds and life insurance products). The Czech fintech industry is growing, with firms active in areas such as accounting, payments, savings, personal finance, P2P lending and crowdfunding.

The Czech insurance sector is relatively small and concentrated but resilient. The insurance sector represented only 3.9% of the overall financial sector assets in June 2023. In terms of assets-to-GDP, it represented only 6.1% in June 2023, compared to an EU average of 54.3%. The sector is very concentrated, as two insurers account for close to 50% of all written premiums in both the life and non-life segments ([155]). Its overall capital adequacy remained adequate, rising slightly to 222% in the first half of 2023 from 219% in 2022. Following a solid 2022, gross premiums continued to rise in the first half of 2023, led by the non-life-insurance segment with 4.4% growth. Gross premiums in the life-insurance segment were flattish over the same period and claim-settlement costs rose more slowly than premiums for both segments ([156]). As a result, aggregate profitability remained above its long-term average, with the highest return on assets in 10 years. Czech insurers face risks related to climate change. The country scores close to average in terms of the insurance-protection gap for natural hazards in the EIOPA's relevant dashboard ([157]).

([154])Czech National Bank, Autumn 2023, *Financial Stability Report.*

([155])Czech Banking Association statistics, September 2023.

([156])Czech National Bank, Autumn 2023, *Financial Stability Report.*

([157])See the dashboard on the insurance-protection gap for natural catastrophes in a nutshell (europa.eu).

This annex provides an indicator-based overview of Czechia's tax system. It includes information on the tax structure (the types of tax that Czechia derives most of its revenue from), the tax burden on workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance.

Czechia's tax revenue is relatively low in relation to its GDP, except for consumption taxes. Table A19.1 shows that Czechia's tax revenue as a percentage of GDP was considerably below the EU aggregate in 2022. Total tax revenue has increased by about 2.5 percentage points (pps) of GDP since 2010 but remains below the EU average (35.3% in 2022 compared with 40.2% in the EU; see Table A19.1). Tax revenue in all categories remains below the EU aggregate except for consumption taxes (11.3% of GDP in 2022, compared with 11.0% in the EU). Revenue from labour taxes has increased since 2010 (by 0.9 pps of GDP to 17.9% in 2022) and revenue from consumption taxes have increased to a lesser extent over the same period (by 0.6 pps to 11.3 in 2022), while revenue from capital taxes increased to 6.2% of GDP in 2022. Revenue from environmental taxes is below the EU average (at 1.5% of GDP, compared with the EU average of 2.0%) and revenue from property taxation (including recurrent property taxation) remains very low (expressed as a percentage of GDP and as a percentage of total tax revenue) (see Table A19.1 and Graph A19.1). Such low taxes on property will increase in coming years as laid down in the Act on the Consolidation of Public Budget (Consolidation Package) explained below.

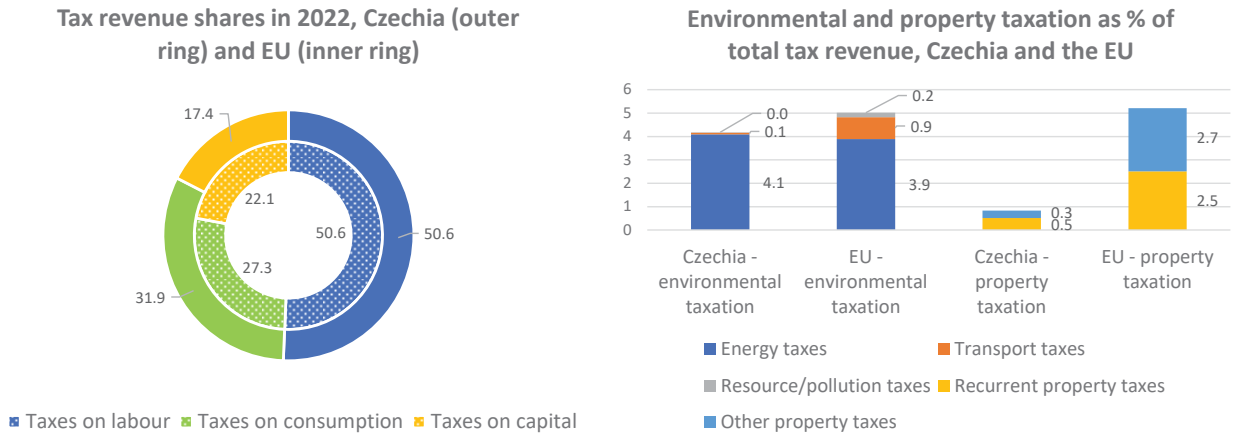
The Act on the Consolidation of Public Budgets includes a host of tax-related measures, which mostly increase revenue, and has been effective since January 2024. Some of the key tax measures are as follows. The corporate income tax rate has increased from 19% to 21%, bringing the Czech Republic closer to the European average. For personal income tax, a higher tax rate of 23% now applies to income above a specific threshold and certain deductions or tax credits are abolished, thus broadening the tax base. The minimum assessment base for social security contributions of self-employed persons has increased from 25% to 40% of the average wage. On VAT, reduced tax rates have been unified as a single 12% rate, leaving only the rates of 21% and 12% for different categories of goods and services (some goods and services have shifted from one rate category to another). Real estate tax rates have increased on average by 80%. In the case of excise duties, there is a multi-year plan to increase the rates on alcohol and tobacco products, for which, in addition, taxation of alternative products not yet taxed (e-cigarette refills, nicotine sachets) has been introduced. In addition, exemptions on mineral oil excise duties

Table A19.1:**Taxation indicators**

		Czechia					EU-27				
		2010	2020	2021	2022	2023	2010	2020	2021	2022	2023
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	32.9	35.9	35.9	35.3		37.9	40.0	40.4	40.2	
	Labour taxes (as % of GDP)	17.0	20.2	19.0	17.9		20.0	21.3	20.7	20.3	
	Consumption taxes (as % of GDP)	10.7	11.3	11.4	11.3		10.8	10.7	11.2	11.0	
	Capital taxes (as % of GDP)	5.1	4.4	5.5	6.2		7.1	8.0	8.6	8.9	
	Of which, on income of corporations (as % of GDP)	3.2	3.1	3.8	4.2		2.4	2.5	3.0	3.4	
	Total property taxes (as % of GDP)	0.5	0.3	0.3	0.3		1.9	2.3	2.2	2.1	
	Recurrent taxes on immovable property (as % of GDP)	0.2	0.2	0.2	0.2		1.1	1.2	1.1	1.0	
	Environmental taxes as % of GDP	2.3	1.9	1.8	1.5		2.4	2.2	2.3	2.0	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	35.7	39.7	35.4	35.1	35.7	33.9	31.7	32.1	31.8	31.7
	Tax wedge at 100% of average wage (Single person) (*)	42.1	44.1	40.0	39.9	40.2	41.0	40.1	39.9	40.0	40.2
	Corporate income tax - effective average tax rates (1) (*)		18.3	18.3	18.3			19.5	19.0	19.0	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	8.0	6.7	7.2	6.1		8.6	8.1	8.2	7.9	
Tax administration & compliance	Outstanding tax arrears: total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		31.4	28.8				40.9	35.5		
	VAT Gap (% of VAT total tax liability, VTTL)(**)	22.7	12.1	7.0	5.3			9.7	5.4		

Forward-looking effective tax rate (OECD).
A higher value indicates a stronger redistributive impact of taxation.
(*) EU-27 simple average.
(**) Forecast value for 2022, if available. For more details on the VAT gap, see European Commission, Directorate-General for Taxation and Customs Union, 2023, *VAT gap in the EU*, https://data.europa.eu/doi/10.2778/911698.
For more data on tax revenues as well as the methodology applied, see the Data on Taxation webpage, https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en.
Source: European Commission, OECD

Graph A19.1: **Tax revenues from different tax types, % of total revenue**



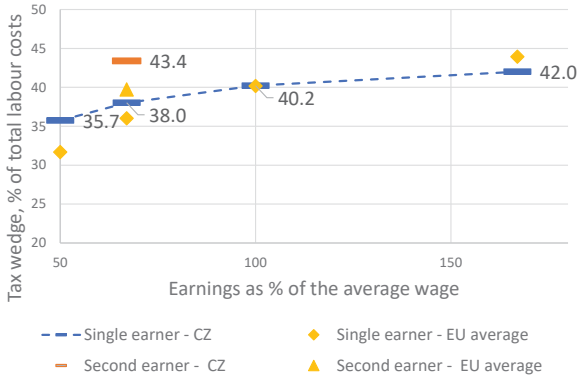
Source: European Commission

and energy taxes were modified or abolished. For the gambling tax, the second rate has been increased from 23% to 30% and the tax revenue from all internet games now belongs to entirely to the state budget. Most of these measures will result in increased revenue.

In its revised RRP, Czechia included two reforms in the field of green transition. These concern tax measures in support of zero-emission mobility and a highway vignette to incentivise zero-emission mobility. Regarding further pollution and resources taxes, there could be potential to strengthen the application of the 'polluter pays' principle. Czechia has implemented three of the six main types of pollution and resources taxes (i.e. taxes on NOx emissions, waste landfilling, and discharge of waste into water).

Czechia's labour tax burden is slightly less progressive than the EU average. Table A19.1 shows that the tax wedge for single workers earning 50% of the average wage has been reduced in recent years (35.7% in 2023 against 39.7% in 2020). However, it is above the EU average of 31.7% (see also Graph A19.2). Similarly, the tax wedge for second earners earning 67% of the average wage was 43.4 (above the EU average). Also, the tax wedge for second earners was significantly above the tax wedge of single persons at the same wage level. The tax wedge at 100% of average wage has also decreased in recent years and is close to the EU average in the latest data. The ability of the tax and benefit system to reduce income inequality (measured by its ability to reduce the GINI coefficient) has decreased since 2010 and has remained below the EU average in recent years (see Table A19.1). The latest measures approved in the Consolidation Package may prompt improvements in this respect.

Graph A19.2: **Tax wedge for single and second earners, % of total labour costs, 2023**



The second earner tax wedge assumes a first earner at 100% of the average wage and no children. For the methodology of the tax wedge for second earners, see OECD, 2016, *Taxing Wages 2014-2015*.

Source: European Commission

Czechia is doing relatively well in tax compliance and enforcement. The VAT gap (an indicator of the effectiveness of VAT enforcement and compliance, where a low gap indicates high effectiveness) decreased in Czechia by 5.1 pps from 12.1% in 2020 to 7% in 2021, although this was in part due to COVID-19 effects. However, this is still above the 2021 EU-wide average VAT gap of 5.4% (see Table A19.1) The downward trend in Czechia's VAT gap is expected to continue into 2022, when the VAT gap is expected to decrease to 5.3%. The stability of this trend from 2019 is also a signal that there was no major issue with recording deferred VAT payments in VAT revenue between 2020 and 2021. With effect from 1

January 2023, Czechia doubled the annual turnover threshold for VAT registration (from CZK 1 million [about EUR 40 000] to CZK 2 million [about EUR 80 000]). This measure supports small enterprises by shielding them from VAT compliance burdens, but it also means that Czechia will collect less tax from them. However, according to estimates provided by Czechia, the introduction of the special measure would lead to a decrease in VAT revenue collection of less than 2% and would therefore not significantly affect the total amount of revenue from VAT or the overall amount of tax revenue collected. Czechia anticipates that increasing the threshold will reduce the burden on the tax administration by lowering the requirement to manage and inspect eligible small enterprises that opt into this scheme.

ANNEX 20: TABLE WITH ECONOMIC AND FINANCIAL INDICATORS

Table A20.1:**Key economic and financial indicators**

	2004-07	2008-12	2013-20	2021	2022	2023	forecast 2024	forecast 2025
Real GDP (y-o-y)	5.9	0.2	2.2	3.6	2.4	-0.3	1.2	2.8
Potential growth (y-o-y)	.	2.0	2.3	0.5	1.1	2.0	1.5	1.5
Private consumption (y-o-y)	3.6	0.6	1.7	4.1	-0.6	-3.1	2.3	3.8
Public consumption (y-o-y)	0.2	-0.1	2.5	1.4	0.3	3.5	1.8	2.2
Gross fixed capital formation (y-o-y)	7.1	-1.9	3.4	0.8	3.0	4.0	3.0	2.4
Exports of goods and services (y-o-y)	18.1	4.2	3.2	6.9	7.2	2.8	2.8	3.7
Imports of goods and services (y-o-y)	15.5	2.9	3.4	13.3	6.3	-0.7	1.3	4.4
Contribution to GDP growth:								
Domestic demand (y-o-y)	3.8	-0.3	2.2	2.4	0.6	0.3	2.2	2.8
Inventories (y-o-y)	0.6	-0.4	0.0	4.8	0.9	-3.3	-2.1	0.2
Net exports (y-o-y)	1.5	1.0	0.1	-3.6	0.9	2.6	1.1	-0.3
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	.	0.3	0.3	-0.5	0.3	1.1	0.4	0.2
Capital accumulation (y-o-y)	.	0.8	0.7	0.6	0.7	0.7	0.8	0.8
Total factor productivity (y-o-y)	.	1.0	1.3	0.5	0.1	0.1	0.3	0.5
Output gap	3.7	-0.3	0.3	-0.9	0.4	-1.9	-2.2	-0.9
Unemployment rate	7.2	6.4	3.6	2.8	2.2	2.6	2.8	2.9
GDP deflator (y-o-y)	2.1	0.9	2.4	3.3	8.5	8.6	2.6	2.5
Harmonised index of consumer prices (HICP, y-o-y)	2.3	2.7	1.6	3.3	14.8	12.0	2.5	2.2
HICP excluding energy and unprocessed food (y-o-y)	1.8	2.1	1.9	3.8	12.4	9.5	2.8	2.4
Nominal compensation per employee (y-o-y)	6.0	2.5	5.0	5.0	6.0	7.0	7.3	6.9
Labour productivity (real, hours worked, y-o-y)	4.9	0.3	2.3	0.4	-2.1	-0.6	1.4	2.3
Unit labour costs (ULC, whole economy, y-o-y)	1.3	2.1	3.5	1.8	5.1	8.2	6.3	4.1
Real unit labour costs (y-o-y)	-0.7	1.2	1.0	-1.5	-3.2	-0.3	3.6	1.5
Real effective exchange rate (ULC, y-o-y)	3.6	2.0	1.4	5.0	5.8	2.9	-3.9	1.3
Real effective exchange rate (HICP, y-o-y)	3.4	2.4	0.6	3.9	9.6	8.4	.	.
Net savings rate of households (net saving as percentage of net disposable income)	7.2	7.4	8.4	14.8	11.7	.	.	.
Private credit flow, consolidated (% of GDP)	7.9	4.3	3.3	2.9	4.5	.	.	.
Private sector debt, consolidated (% of GDP)	57.6	77.5	80.8	78.8	76.0	.	.	.
of which household debt, consolidated (% of GDP)	18.1	28.6	31.5	34.4	32.6	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	39.5	48.9	49.3	44.4	43.4	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	.	.	.	1.4	1.2	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-2.7	-0.9	-1.2	-2.0	-5.7	-0.5	-1.2	-1.0
Corporations, gross operating surplus (% of GDP)	28.6	28.2	28.6	28.3	29.1	30.7	27.8	27.3
Households, net lending (+) or net borrowing (-) (% of GDP)	1.0	1.9	2.6	6.2	4.9	6.6	6.3	5.3
Deflated house price index (y-o-y)	4.6	-0.9	5.5	16.4	1.6	-10.0	.	.
Residential investment (% of GDP)	4.4	4.4	4.1	4.7	4.3	3.9	.	.
Current account balance (% of GDP), balance of payments	-3.2	-2.3	1.0	-2.8	-4.9	0.4	0.9	0.5
Trade balance (% of GDP), balance of payments	1.8	3.5	6.6	2.8	1.1	5.2	.	.
Terms of trade of goods and services (y-o-y)	-0.5	-0.7	0.6	-0.1	-3.7	2.7	-0.6	0.1
Capital account balance (% of GDP)	0.3	0.9	1.0	1.7	0.7	1.2	.	.
Net international investment position (% of GDP)	-27.8	-43.5	-26.0	-14.5	-18.7	-13.2	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	17.8	8.6	27.0	36.9	28.9	30.4	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	30.5	41.9	60.1	72.1	63.1	50.7	.	.
Export performance vs. advanced countries (% change over 5 years)	.	.	3.6	2.4	-3.7	1.2	.	.
Export market share, goods and services (y-o-y)	10.0	-0.9	1.7	-4.8	-5.0	1.6	-0.7	0.0
Net FDI flows (% of GDP)	-4.8	-1.7	-1.6	-0.5	-1.2	-0.2	.	.
General government balance (% of GDP)	-2.0	-3.6	-0.7	-5.1	-3.2	-3.7	-2.4	-1.9
Structural budget balance (% of GDP)	.	.	-0.8	-4.8	-3.3	-2.9	-1.5	-1.5
General government gross debt (% of GDP)	27.7	36.5	36.0	42.0	44.2	44.0	45.2	45.5

(1) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(2) NIIP excluding direct investment and portfolio equity shares.
Source: Eurostat and ECB as of 2024-5-17, where available; European Commission for forecast figures (Spring forecast 2024).

This annex assesses fiscal sustainability risks for Czechia over the short, medium and long term. It follows the multi-dimensional approach of the European Commission's 2023 Debt Sustainability Monitor, updated based on the Commission 2024 spring forecast.

1 – Short-term risks to fiscal sustainability are low. The Commission's early-detection indicator (S0) does not point to short-term fiscal risks (Table A21.2) ([158]). Government gross financing needs are expected to decrease around 6% of GDP on average over 2024--2025 (Table A21.1, Table 1). Financial markets' perceptions of sovereign risk remain positive, as confirmed by the CDS spread and the 'AA' rating that the three major rating agencies assign to Czech government debt.

2 – Medium-term fiscal sustainability risks appear medium.

The DSA baseline shows that the government debt ratio is expected to remain broadly unchanged and below 60% of GDP in the medium term (at around 48% of GDP in 2034) (Graph 1, Table 1) ([159]). The debt dynamics is supported by an assumed structural primary deficit (excluding changes in cost of ageing) of -0.1% of GDP as of 2024. This assumption appears relatively ambitious compared to past fiscal performance (Table A21.2) ([160]). The debt decline also benefits from a slightly favourable but declining snowball effect, notably thanks to the impact of Next Generation EU. Finally, government gross financing needs are expected to slightly increase by the end of the projection period in 2034 around 7% of GDP, above the average over 2024-2025.

The baseline projections are stress-tested against four alternative deterministic scenarios to assess the impact of changes in key assumptions relative to the baseline (Graph 1). For Czechia, all the stress test scenarios would lead to worse results as compared to the baseline, with particularly adverse developments under the *lower structural primary balance scenario* (i.e. the projected cumulative improvement in the SPB over 2023-2024 is halved). Under this stress scenario, the debt ratio would be higher than under the baseline by about 8 pps. of GDP in 2034. Similar impact (about 7 pps.) is projected under the *historical structural primary balance (SPB) scenario* (i.e. the SPB returns to its historical 15-year average of -0.9% of GDP). Under the *adverse interest-growth rate differential scenario* (i.e. the *interest-growth rate* deteriorates by 1 pp. compared with the baseline), the debt ratio would be higher than under the baseline by around 4 pps. of GDP in 2034. The smallest adverse impact on the debt ratio is projected for 2034 under the *financial stress scenario* (i.e. interest rates temporarily increase by 1 pp. compared with the baseline) with debt ratio that would be higher by only around 0.4 pp.

The stochastic projections indicate low risk, pointing to the low sensitivity of these projections to plausible unforeseen events ([161]). These stochastic simulations indicate a 52% probability that the debt ratio will be higher in 2028 than in 2023, implying low risks given the relatively low debt level. In addition, the uncertainty surrounding the baseline debt projections is low, as measured by the difference

([158]) The S0 is a composite indicator of short-term risk of fiscal stress. It is based on a wide range of fiscal and financial-competitiveness indicators that have proven to be a good predictor of emerging fiscal stress in the past.

([159]) The assumptions underlying the Commission's 'no-fiscal policy change' baseline include in particular: (i) a structural primary deficit, before changes in ageing costs, of 0.1% of GDP from 2024 onwards; (ii) inflation converging linearly towards the 10-year forward inflation-linked swap rate 10 years ahead (which refers to the 10-year inflation expectations 10 years ahead); (iii) the nominal short- and long-term interest rates on new and rolled over debt converging linearly from current values to market-based forward nominal rates by T+10; (iv) real GDP growth rates from the Commission 2024 spring forecast, followed by the EPC/OGWG 'T+10 methodology projections between T+3 and T+10 (average of 1.5%); (v) ageing costs in line with the 2024 Ageing Report (European Commission, Institutional Paper 279, April 2024). For information on the methodology, see the 2023 Debt Sustainability Monitor (European Commission, Institutional Paper 271, March 2024).

([160]) This assessment is based on the fiscal consolidation space indicator, which measures the frequency with which a tighter fiscal position than assumed in a given scenario has been observed in the past. Technically, this consists in looking at the percentile rank of the projected SPB within the distribution of SPBs observed in the past in the country, taking into account all available data from 1980 to 2022.

([161]) The stochastic projections show the joint impact on debt of 10,000 different shocks affecting the government's budgetary position, economic growth, interest rates and exchange rates. This covers 80% of all the simulated debt paths and therefore excludes tail events.

between the 10th and 90th debt distribution percentiles in five years' time (Graph 2).

3 – Long-term fiscal sustainability risks appear overall medium. This assessment is based on the combination of two fiscal gap indicators, capturing the required fiscal effort to stabilise debt (S2 indicator) and bring to 60% of GDP (S1 indicator) over the long term ([162]). This assessment is driven by the projected increase in ageing costs and to a smaller extent, the unfavourable initial budgetary position. Hence, these results are conditional on the country maintaining a sizeable SPB over the long term, and duly implementing legislated pension reforms.

The S2 indicator points to medium fiscal sustainability risks. The indicator shows that, relative to the baseline, the SPB would need to improve by 4.7 pps. of GDP in 2025 to ensure debt stabilisation over the long term. This result is underpinned by the projected increase in ageing-related costs (contribution of 4.0 pps. of GDP), and to a lesser extent the unfavourable initial budgetary position (0.7 pp.). Ageing cost developments are primarily driven by the projected increase in public pension expenditure (contribution of 2.1 pps.), coupled with the projected increase in health-care and long-term care spending (1.9 pps. of GDP) (Table A21.1, Table 2).

The S1 indicator points to medium fiscal sustainability risks. The indicator shows that the country would need to improve its fiscal position by 2.9 pps. of GDP in 2025 to bring its debt to 60% of GDP by 2070. This result is mainly driven by the projected increase in age-related public spending (contribution of 2.9 pps. of GDP), and to a lesser extent the unfavourable initial budgetary position (0.4 pp.) (Table A21.1, Table 2).

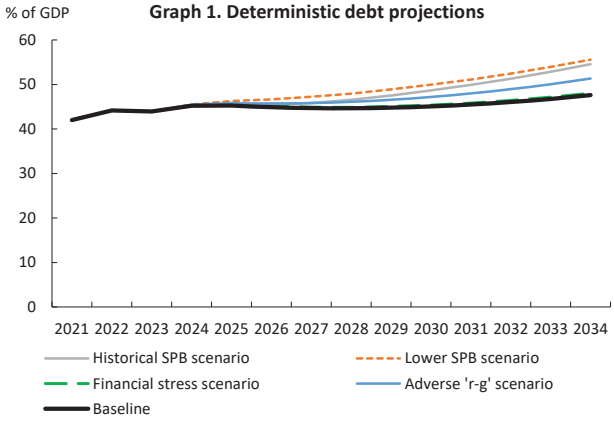
4 – Finally, several additional risk factors need to be considered in the assessment. On the one hand, risk-increasing factors are related to the recent increase in interest rates and the significant share of short-term debt. On the other hand, risk-mitigating factors include the stability of debt maturity in recent years, the relatively stable financing sources (with a diversified and large investor base) and the currency denomination of debt

([162])The S2 fiscal sustainability indicator measures the permanent SPB adjustment in 2025 that would be required to stabilise public debt in the long term. It is complemented by the S1 indicator, which measures the permanent SPB adjustment in 2025 to bring the debt ratio to 60% by 2070. For both the S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 % of GDP, 'medium risk' if it is between 2% and 6% of GDP, and 'low risk' if the effort is negative or below 2% of GDP. The overall long-term risk classification combines the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 if it signals a higher risk than S2. See the 2023 Debt Sustainability Monitor for further details.

Table A21.1:**Debt sustainability analysis – Czechia**

Table 1. Baseline debt projections	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio (% of GDP)	**42.0**	**44.2**	**44.0**	**45.2**	**45.3**	**45.0**	**44.7**	**44.6**	**44.8**	**45.1**	**45.5**	**46.0**	**46.8**	**47.6**
Changes in the ratio	4.4	2.2	-0.2	1.3	0.1	-0.3	-0.3	-0.1	0.2	0.3	0.4	0.6	0.7	0.9
of which														
Primary deficit	4.4	2.0	2.3	1.0	0.2	0.0	-0.1	0.1	0.2	0.3	0.4	0.6	0.7	0.8
Snowball effect	-1.7	-3.1	-2.0	-0.2	-0.9	-0.3	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
Stock-flow adjustments	1.7	3.2	-0.5	0.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	10.9	10.6	6.8	5.5	5.5	4.9	5.0	5.3	5.7	6.1	6.5	6.9	7.3	7.5

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2024-2028

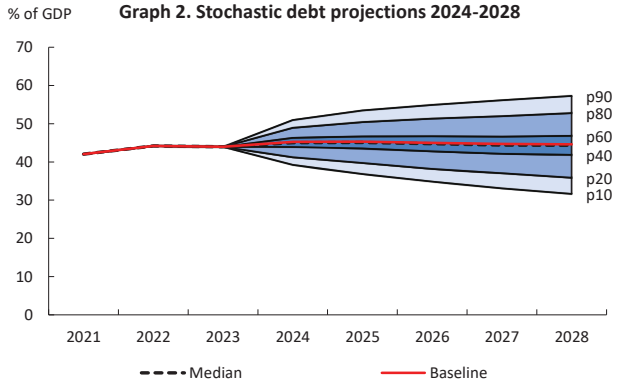


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	S2
Overall index (pps. of GDP)		**2.9**	**4.7**
of which			
Initial budgetary position		0.4	0.7
Debt requirement		-0.3	
Ageing costs		2.9	4.0
of which	*Pensions*	1.6	2.1
	Health care	0.5	0.7
	Long-term care	0.7	1.2
	Education	0.1	0.1

Source: Commission services

Table A21.2:**Heat map of fiscal sustainability risks – Czechia**

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
			Deterministic scenarios								
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	47.6	54.6	55.6	51.4	48.0				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	26%	28%	28%	26%	26%				
		Probability of debt ratio exceeding in 2028 its 2023 level						52%			
		Difference between 90th and 10th percentiles (pps. GDP)						25.7			

(1) Debt level in 2034. 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 debt ratio exceeding in 2028 its 2023 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 10000 different shocks. Green, yellow and red cells indicate increasing uncertainty. (For further details on the Commission's multidimensional approach, see the 2023 Debt Sustainability Monitor)

Source: European Commission (for further details on the Commission's multidimensional approach, see the 2023 Debt Sustainability Monitor)

Source: Commission services