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2023 Country Report - Hungary

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Recommendation for a COUNCIL RECOMMENDATION

on the 2023 National Reform Programme of Hungary and delivering a Council opinion on the 2023 Convergence Programme of Hungary

{COM(2023) 617 final}

European Commission

Hungary

2023 Country Report

ECONOMIC AND EMPLOYMENT SNAPSHOT

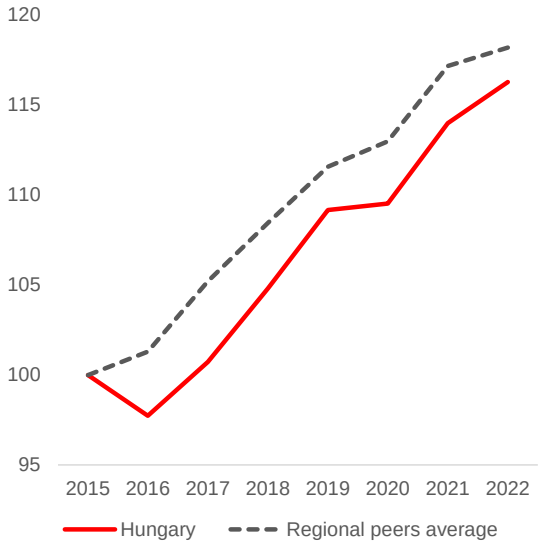
The economy is slowing down, with challenges posed by inflation

The rate at which Hungary is catching up with the average income level in the EU has accelerated since 2017. Hungary's GDP per person rose from around 69% of the EU average in 2017 to 74.7% in 2022. The labour market has improved significantly, with the employment rate (80.2%) rising well above the EU average and the unemployment rate (3.6%) remaining well below it in 2022. The main poverty indicators also improved, although indicators measuring material deprivation are still among the highest in the EU, indicating that some groups in society have benefitted less from economic growth. Hungary performs at or above the average in three quarters of the indicators of the European Pillar of Social Rights.

Investment and economic growth were boosted by fiscal and monetary policy stimulus. The budget deficit has been consistently above the EU average since 2017, and monetary conditions were also supportive until mid-2021. Capital accumulation was bolstered by high public investment, as well as grants and cheap financing for private investment. As a result, the investment rate in the Hungarian economy was among the highest in the EU since 2017.

The structure of investments did not favour productivity growth. Growth in labour productivity was similar to the regional average, despite a higher aggregate investment rate (see Graph 1.1). This is because the structure of investment has moved since 2017 from productivity-enhancing machinery and intellectual assets to construction. Furthermore, little progress has been made in addressing barriers to productivity growth, especially in the areas of education and skills, innovation and the business environment (see more details in Chapter 3 and Annexes). In 2022, labour productivity in Hungary was 32% below the EU average, after adjusting for different price levels, which indicates that there is great scope to catch up.

Graph 1.1: **Labour productivity in Hungary and regional peers, relative to 2015 (2015=100)**



(1) Labour productivity per hour worked, at constant prices. (2) Regional peers: BG, CZ, EE,HR, LT, LV, PL, RO, SI and SK

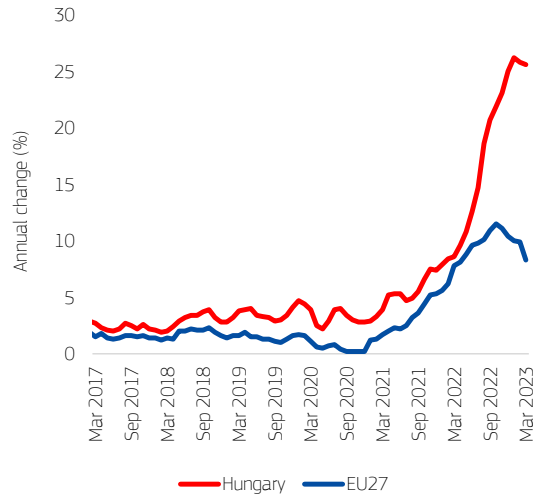
Source: Eurostat

Expansionary economic and fiscal policies contributed to the deterioration of the external balance, rising inflation and house prices, as also reported in the In-depth Review for Hungary. ([1]) High demand for imports had a negative effect on the current account, going from a surplus to a small deficit in 2019. Strong demand and wage growth and currency depreciation were already contributing to a rise in inflation in

([1]) European Commission (2023) In-Depth Review for Hungary, Commission staff working document (COM(2023) 639 final),

2019. Growth in house prices has been among the fastest in the EU, fuelled by government support schemes. Housing construction was hindered by high levels of public investment that overused capacities in construction and increased costs. Further policy stimulus in 2021-2022 and inconsistencies between various policies have exacerbated these trends. Monetary policy has tightened since mid-2021, with the overnight deposit rate at the central bank at 18% since October 2022. However, other policies, such as interest rate ceilings on certain loans and large bank deposits, and subsidised loans, limited the impact of higher interest rates on inflation. Fiscal policy also remained expansionary through 2022 and the minimum wage was raised by 19.4% and 16% in 2022 and 2023 respectively, further fuelling inflation.

Graph 1.2: **Inflation in Hungary and the EU**



(1) HICP, all items
Source: Eurostat

Russia's war of aggression against Ukraine magnified the macroeconomic challenges. Sharply rising energy prices widened the current account deficit to 8.2% of GDP in 2022. Government debt is still above pre-COVID-19 levels, and its relatively short average maturity leads to a rapidly rising burden of interest payments. Higher commodity prices, currency depreciation and indirect tax increases raised HICP inflation to 25.9% in the first quarter of 2023, the highest in the EU. While energy and food price caps delayed the pass-through of commodity price increases to consumer prices, some of these had to be relaxed or abandoned due to their fiscal cost or their disruptive effects on supply. The economic outlook points to a narrowing external deficit and lower inflation, but the worsening economic outlook and the tightening of financial conditions remain concerns (see Annex 22). A consistent policy mix, underpinned by a strong institutional policy framework, is instrumental to safeguard external sustainability and anchor expectations.

Economic growth is set to remain subdued in 2023. Economic activity declined in the second half of 2022 as higher prices, tighter financing conditions and fiscal consolidation have suppressed consumer spending and investment. Real GDP growth is forecast to fall from 4.6% in 2022 to 0.5% in 2023. Inflation is projected to rise from 14.6% in 2022 to 16.4% this year, but recent decreases in commodity prices, currency appreciation and falling consumption are expected to reduce inflation to 4% in 2024. Weaker economic activity is also expected to increase unemployment in 2023, but wage growth is set to remain high due to the pervasive shortage of skilled workers. Thus, the purchasing power of households is projected to rise again in 2024, and GDP growth can pick up to 2.8% in 2024.

Hungary has benefitted from a significant amount of EU cohesion funds, to be complemented by the Recovery and Resilience Facility (see Section 2). Since joining the EU in 2004, Hungary has received the equivalent of around 2% of GDP annually from EU funds in net terms. In the coming years, EUR 21.7 billion of cohesion policy funds in the 2021-27 financial cycle and EUR 5.8 billion in grants under the RRF have been allocated to Hungary. EU funds are a major source of foreign currency for the economy, potentially amounting to around 2.5% of GDP annually between 2022 and 2026 in net terms.

Box 1:

Energy policy response in Hungary

Hungary has adopted several support measures to cushion the impact of energy price inflation on households and businesses. Their cost is projected in the Commission's 2023 spring forecast to amount to 1.2% of GDP in 2023. ([2]) Most measures do not preserve the price signal and are untargeted.

Since 2013, Hungary has applied a system of caps on gas and electricity prices for households, which entail a high level of compensation to utility companies for the losses they incur. In 2022, the caps were scaled back to support only those households that consume less than the national average and the price caps were phased out for most types of non-residential use (e.g. by micro enterprises). This measure is untargeted, as it is based on the number of children in the household, not on the amount of income. However, the 2022 modification has introduced some price signalling and lead to some energy saving in the economy. The price caps on wholesale and retail fuel prices introduced in late 2021 were phased out by December 2022. Hungary has put in place national measures to apply Council Regulation (EU) 2022/1854, namely the contribution related to the spread between Brent and Urals oil ([3]), and a contribution to the income of energy suppliers. Until the end of 2023, energy-intensive SMEs and manufacturers may also benefit from grant and subsidised loan schemes, including for investments in energy efficiency.

In response to the energy crisis, the government adopted an action plan in July 2022 that includes the increase of domestic gas production and imports, an export ban on energy carriers and firewood, increased lignite production and increased production at the Matra lignite-fired power plant, and an extended life-cycle for the Paks nuclear plant.

Consolidation of public finances remains a challenge

Fiscal policy has been expansionary for many years ([4]) and has limited the room for manoeuvre during the current crisis. Budget deficits have remained higher than the EU average since 2017 despite relatively higher GDP growth (see the thematic chapter in the 2023 In-depth Review). ([5]) During this period, the expansionary policy may have fuelled macroeconomic vulnerabilities, contributing to accelerating inflation, widening current account deficits and soaring housing prices.

The challenging macroeconomic environment has also worsened the medium-term fiscal outlook. The public debt ratio decreased from 79.3% of GDP in 2020 to 73.3% at the end of 2022. Still, the debt burden is high compared to most other countries in the region and remains 8 percentage points above the 2019 level. The recent fall in the debt ratio was supported by robust economic recovery after the COVID-19 crisis and high inflation. The budget deficit fell from 7.5% of GDP in 2020 to 6.2% in 2022, but remained among the highest in the EU,

([2]) For 2022, gross budgetary costs of measures amounted to 1.0% of GDP. All of the measures outlined in this box were already in place in 2022.

([3]) Hungary's oil company MOL continues to import Ural oil from Russia, whose price remains below the price of more common Brent oil.

([4]) Fiscal policy is often called expansionary or "loose" if it increases demand in the economy via higher spending and tax cuts.

([5]) European Commission (2023) In-Depth Review for Hungary, Commission staff working document (COM(2023) 639 final),

and despite ongoing consolidation efforts is expected to remain elevated 4.0% of GDP in 2023 and 4.4% in 2024. It may become challenging to reduce the deficits to prudent levels in the coming years. The high costs of the caps on household energy and utility prices, the phasing-out of many sectoral taxes in 2023, public wage pressures, and the continued impact of non-temporary measures introduced in recent years will exert pressure on the budget in the medium term. Given the relatively low average maturity of the debt, ([6]) the current high interest rates will also lead to a sharp increase of debt servicing costs. Furthermore, due to decreasing domestic demand for government securities in 2022, debt management had to rely increasingly on foreign borrowing. According to the Commission's debt sustainability analysis based on the 2023 Spring forecast, Hungary faces high risks in the medium term and medium risks in the long term (see Annex 21).

Structural challenges are holding back productivity growth

A renewed focus on structural reforms is key to securing productivity growth. Hungary would benefit from shifting from labour-intensive and resource-intensive assembly activities to more advanced and productive tasks within global value chains. This requires more innovation and better-functioning markets. To achieve these, Hungary needs more highly skilled workers and a more predictable business environment. Currently, Hungary is placed low on the European Innovation Scoreboard and its performance relative to the EU has worsened over time (see also Annex 9).

Untapped reserves of labour could help to ease the shortage of skilled workers. The labour market recovered quickly from COVID-19 but the lack of skilled workers is hindering growth. The gradual raising of the statutory retirement age increased labour supply from 2012 onwards as fewer older workers could leave the labour market. These tailwinds to labour market participation ended in 2022 when the statutory retirement age reached 65 for all active workers. However, there are other factors that may ease the labour shortage. The government has made it easier for workers to come from certain third countries ([7]) by waiving the need to have a work permit. According to provisional official data ([8]) more than 85 000 foreigners were working in Hungary in January 2023. Since Russia's war of aggression started, 33 000 people from Ukraine registered in protection schemes in Hungary. There is also a large pool of people who could be better integrated into the labour market, including women with care responsibilities and disadvantaged groups, in particular low-skilled people, Roma, and persons with disabilities. Unless further efforts are made in this area, it will be challenging for Hungary to reach the national employment target of 85% by 2030.

Weak education and health outcomes are obstacles to further productivity growth. The education system does not provide enough skilled and high-skilled workers, which would be a prerequisite for high value-added production. Pupils with a disadvantaged background, including Roma, continue to face challenges in terms of inclusive education and have lower chances of getting a quality education and obtaining a university diploma. The proportion of pupils who leave school early has not fallen ([9]) and the share of pupils reaching higher education is one of the lowest in the EU. The shortage of qualified teachers poses an increasing challenge. Health outcomes, such as life expectancy at birth and cancer mortality, are among the worst in the EU. Rates of mortality due to preventable and treatable causes are significantly higher than the EU average, reflecting the high prevalence

([6]) The average maturity of the central government debt stood at some 6 years at end 2022. This means that the debt securities issued by the treasury will mature, on average, in 5 years.

([7]) Ukraine, Serbia, Vietnam, the Philippines, Montenegro, Belarus, Indonesia, Kazakhstan, North Macedonia and Bosnia and Herzegovina.

([8]) Hungarian Central Statistical Office (in companies with five or more employees)

([9]) In particular, most Roma children are not completing upper secondary education.

of health risk factors in the population and issues with the quality of health services.

The unpredictable business environment increases the cost of doing business. Compared to the rest of the EU, Hungary has a relatively low ranking on business environment scoreboards, in line with its level of economic development. In recent years, there has been increased government intervention in the form of sector-specific taxes, tailor-made legislation and government decisions targeting business transactions. However, specific companies and industries benefit from generous state subsidies and supportive regulation. A polarised business environment makes it more important to have good relations with the authorities as this can be a way to benefit from government subsidies and avoid targeted administrative measures. These interventions have reduced competition and hindered the growth of more efficient companies. Concerns remain about judicial independence, the anti-corruption framework and the quality of law-making, which have an additional bearing on the business environment. Firms may choose not to seek remedy against targeted administrative measures in the courts due to concerns about judicial independence ([10]). It remains essential for Hungary to fully and correctly implement all the reforms, addressing different aspects of the rule of law, that it has committed to implement in its RRP, and that the effects of these reforms are not undermined by other means. The Commission will continue to monitor the functioning of the Hungarian justice system.

Regional disparities in Hungary have decreased since 2010 but remain significant. GDP per capita is still only around half the EU average in four of Hungary's eight NUTS-2 regions. There are also significant disparities within these regions, driven by large labour productivity gaps. In 2021, GDP per capita was more than three times higher in the capital region of Budapest than in any of the four least-developed NUTS-2 regions. The less developed regions have a higher rate of early school leavers and the share of people with a low level of education is significantly higher in some of the less developed regions than in the more developed parts of the country. There are also significant disparities within regions in terms of social indicators (see Annex 17).

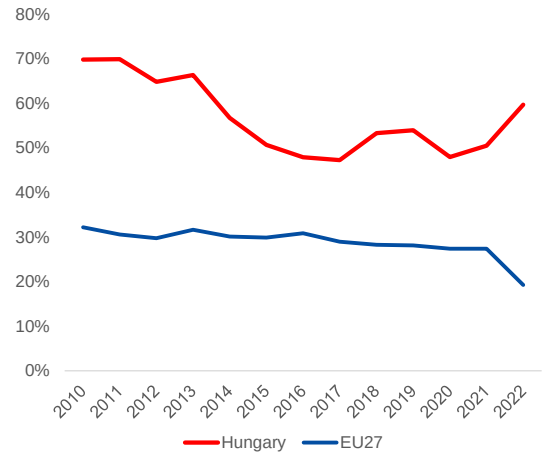
While Hungary is making progress towards achieving most of the United Nations Sustainable Development Goals (SDGs), there is still a gap with other EU countries. Hungary is improving on indicators on environmental sustainability (SDGs 2, 6, 11, 12 and 13) but most remain below the EU average (see Annex 1). Hungary performs well on SDG indicators on growth, employment and poverty reduction (SDGs 1 and 8). Further progress is needed in a number of areas related to health, education and gender equality (SDGs 3, 4 and 5) which remain far below the EU average. Hungary is also moving away from the target on reducing inequalities (SDG 10). Finally, Hungary needs to do more to catch up with the EU average on peace, justice and strong institutions (SDG 16).

The green and digital transition is progressing only slowly

Hungary's energy sector still relies heavily on Russia for fossil and nuclear fuels. While many EU countries managed to reduce their dependency on Russian gas and oil products by the end of 2022, Hungary still relies on them to almost the same extent as before 2022 (Graph 1.3). This is partly due to limited short-term substitution possibilities, but also, partly, to limited policy efforts to mitigate demand and diversify imports. Hungary has obtained several exceptions from the sanctions on Russian energy products. The nuclear energy sector, which accounted for 45% of electricity generated in 2021, relies heavily on Russian technology and nuclear fuel, and on Russian financing for the new Paks 2 nuclear power plant.

([10]) In 2023 only 32% of companies perceive the level of independence of courts and judges to be 'fairly or very good' (Eurobarometer).

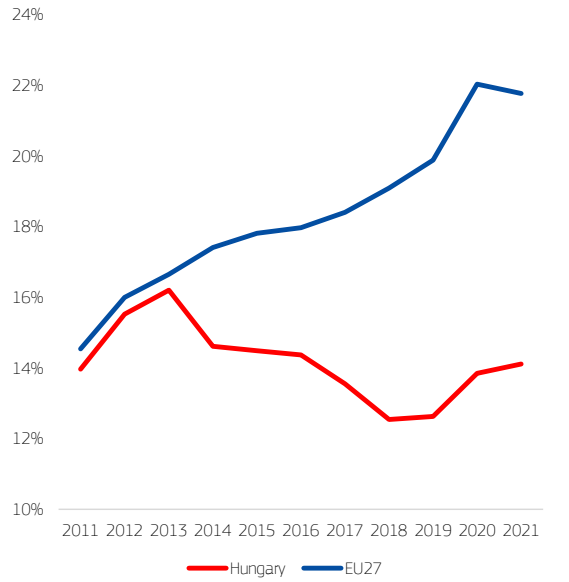
Graph 1.3: **Share of Russian products in imports of mineral fuels in Hungary and EU27, volume**



EU27 average without LU and MT. Data for 2022 refer to first 11 months
Source: Eurostat

The green transition is partly slowed by policies focusing on industrialisation and cheap energy from fossil fuels. While Hungary has limited domestic energy resources, policies have focused on attracting resource-intensive production, such as large battery assembly plants and car manufacturing. As part of the green transition, the electrification of transport may make it necessary to retrain blue-collar workers in the car industry. Further efforts are needed on upskilling and re-skilling in declining and transforming industries, given the low participation of adults in training, including in energy-intensive industries. The shortage of green skills in construction might also hinder the improvement of energy efficiency in buildings. The low level of regulated energy prices has limited the incentives for households to use fossil fuels efficiently. Hungary uses more energy and materials to produce a unit of income than the EU average. Contrary to the general trend among EU countries, resource productivity in the Hungarian economy has not improved over the past decade. In recent years, greenhouse gas emissions in the transport sector have risen sharply, damaging air quality and posing risks to public health. The share of energy from renewable sources is one of the lowest in the EU and has fallen over the last decade (Graph 1.4) as the generation of green energy could not keep pace with the economy's increasing use of energy.

Graph 1.4: **Share of energy from renewable sources**



Source: Eurostat

Water management and climate adaptation remain concerns. Hungary's water-supply and sanitation system are still not fully compliant with the Drinking Water and the Urban Wastewater Directives, with specific challenges in access to drinking water for vulnerable groups. Investment in existing systems is lagging due to the cap on public utility bills. With climate change expected to reduce flow levels in the country's rivers and increase the incidence of droughts, more attention should be paid to the key issues of: (i) water retention ([11]); (ii) restoring natural hydrology; (iii) disincentives to draining land in times of higher rainfall, (iv) adapting agricultural practices. Progress towards a circular economy is still at an early stage, with the rate of use of circular materials and the rate of recycling far below the EU average.

Digital skills and the use of digital technologies are lagging behind. Hungary ranks 22nd out of 27 EU Member States in the 2022 Digital Economy and Society Index. It shows greater vulnerability than average in

([11]) With a focus on landscape retention, and nature-based solutions.

the EU as regards the resilience of its digital dimension. The take-up of very fast broadband and Very High Capacity Network coverage is high in comparison to the rest of the EU, but 5G mobile internet coverage is one of the lowest in the EU. Broadband internet is relatively expensive compared to the average income in Hungary, partly due to the sector-specific taxes on telecommunications. Broadband access is particularly low among SMEs ([12]). The share of companies using basic digital technologies is among the lowest in the EU and the rate of adoption of advanced technologies (e.g. AI, big data) is also low, especially in the least developed regions. The share of people with at least basic digital skills also lags behind the EU average, with significant territorial differences. The use of e-government services in Hungary is above the EU average and there has been a significant increase in the number of services available online. However, Hungary performed poorly on the availability of open data, the transparency of online services and the availability of cross-border services.

([12]) See the variable "broadband access by company size" (based on ISOC_BDE15B_E of Eurostat) in https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en.

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

The Hungarian recovery and resilience plan (RRP) is significant. Endorsed in December 2022, with a total of EUR 5.8 billion in grants, it represents about 3.8% of Hungary's GDP in 2021. The plan includes significant measures to accelerate the twin green and digital transition, as well as to boost economic, institutional and social resilience, including strengthening the rule of law. In so doing, it addresses a significant subset of the country-specific recommendations addressed to Hungary in the past. The plan was approved under the condition of the full and effective implementation of remedial measures undertaken by Hungary under the procedure pursuant to Regulation (EC, Euratom) 2020/2092 and milestones to ensure sound financial management of the EU budget and the protection of the financial interests of the EU. Together with other rule of law reforms related to judicial independence, these measures have been translated into 27 'super milestones'.

Due to its late adoption in December 2022, the implementation of Hungary's recovery and resilience plan has been significantly delayed. A swift and steady implementation of the plan would require the fulfilment of 27 milestones related to strengthening judicial independence and safeguarding the protection of the financial interests of the Union. No payment under the plan is possible until these milestones are fully and correctly implemented. Hungary's REPowerEU grant allocation amounts to EUR 701.6 million. Hungary plans to use the REPowerEU grant and additional loan on energy related investments.

The green transition is a key priority of the RRP, with 48.1% of its allocation dedicated to climate-related measures. A wide range of reforms and investments in sustainable transport, energy, water management and the circular economy are expected to make a significant contribution to this objective and to the decarbonisation of Hungary's economy.

The RRP includes a comprehensive package of measures on energy, with significant reforms and investments promoting renewable energy. It includes reforms that will remove regulatory obstacles to installing wind turbines, create 'go-to areas' in the windiest regions and improve the procedures for granting permits for renewable energy installations. To enable energy produced from renewable sources to be securely and flexibly integrated into the grid, the plan includes investments to improve the electricity network, install storage facilities, finance solar panels for 35 000 households, and put solar power plants in the most disadvantaged settlements. Further measures address the sustainability of transport, water management, and the circular economy.

The RRP promotes the digital transformation of the economy and society, which is embedded in different measures. Most parts (components) of the RRP contain investments in the digital transition, with 29.8% of the total allocation dedicated to digital measures. Several measures are set out to improve the availability of digital equipment in primary, vocational and higher education and, to a certain degree, to improve digital skills. The plan also contains measures on the digitalisation of the public administration and the health, transport, and energy sectors.

Reforms and investments aim to improve the quality of education and training, including for disadvantaged students and vulnerable groups. The plan includes several measures to strengthen higher and vocational education and training. These include the provision of digital learning materials, digital equipment and renovated classrooms for

students in vocational education and training. Reforms to improve the attractiveness of the teaching profession include a framework to gradually increase the salaries of teachers in the public education system, as well as professional development. The plan also includes legislative changes to improve the access of disadvantaged pupils to quality education.

The plan is expected to improve resilience in the health sector. The plan includes measures to modernise hospital care, improve primary care, expand the use of digital health tools and strengthen health information systems. The measures will also help improve preventive care.

The plan includes initiatives to promote sustainable growth across several policy areas. The plan contains measures that support the establishment of national laboratories and the development of research and development cooperation to strengthen innovation.

The plan includes initiatives that contribute to social and territorial cohesion. This is achieved through integrated economic and social development in the 300 most disadvantaged settlements.

The plan includes reforms to improve public finances. One key reform aims to promote the medium and long-term fiscal sustainability of the pension system, and improve its fairness, by raising the level of pensions for lower-income pensioners. Simplification of the tax system, measures to address the risk of aggressive tax planning and reviews of spending are expected to contribute to economic resilience.

The plan includes a comprehensive range of measures on the rule of law. These incorporate, among other things, the commitments made under the 17 remedial measures presented by Hungary in 2022 in the context of the Conditionality Regulation ([13]). It also includes reforms to strengthen judicial independence, and improve the quality of decision-making, the involvement of social partners and stakeholders, and the transparency of and access to public information. Implementing these reforms would effectively address the country-specific recommendations made to Hungary on the rule of law and serve to protect the financial interests of the EU. Key elements of these reforms have been translated into 27 'super milestones', which must be fully and correctly implemented before any payment under the RRF can be made to Hungary, and any later reversal of them would block future payments under the RRF.

The plan includes several measures to reinforce the anti-corruption framework. This includes the establishment of an Integrity Authority and Anti-Corruption Task Force as well as introducing the possibility of a judicial review of a decision by the prosecution service or the investigating authority to dismiss a crime report or terminate criminal proceedings and the adoption of a new National Anti-Corruption Strategy. The plan also includes reforms to improve the quality and transparency of the decision-making process and to ensure a more systematic involvement of stakeholders.

Several commitments of Hungary aim to strengthen judicial independence. To this end, the plan includes measures to: (i) significantly strengthen the role and powers of the National Judicial Council (which is led by judges) to limit arbitrary decisions in the administration of courts; (ii) reform the functioning of the Supreme Court to shield it from political influence; (iii) end the Constitutional Court's role in reviewing final decisions by judges at the request of public authorities; (iv) remove obstacles to preliminary references to the Court of Justice of the European Union.

Finally, the plan includes reforms to improve competition in public procurement. Hungary has committed to

([13]) See Council Implementing Decision (EU) 2022/2506 of 15 December 2022 on measures for the protection of the Union budget against breaches of the principles of the rule of law in Hungary.

Box 2:

Key deliverables under the RRP in 2023-2024

- Set up bodies to prevent and control conflicts of interest and corruption and monitor the rule of law (e.g. Integrity Authority, Anti-Corruption Task Force, Directorate for Internal Audit and Integrity, different working groups composed of civil society representatives) and begin to apply strict procedures to protect the EU's financial interests
- Strengthen judicial independence
- Improve competition in public procurement
- Improve the quality of decision-making, the effective involvement of social partners and stakeholders and increase the transparency of public information
- Improve the permit-granting process for renewable energy, remove regulatory obstacles to the installation of wind power plants, improve the transparency of grid connection procedure and increase the availability of connections to the grid
- Invest in residential solar panels and heating modernisation, storage facilities and smart meters
- Carry out reforms in the education sector targeting the teachers' profession, digitalisation and the inclusion of vulnerable groups
- Carry out reforms in the health sector, including in digitalisation and the mapping of future investments
- Implement integrated economic and social development in the 300 most disadvantaged settlements

reduce to 15% the high share of calls for tender that result in a single bid. To achieve this, Hungary is expected to set up a comprehensive performance measurement framework, to continuously monitor the level of single bids and assess the underlying reasons for them. It will also develop and implement an action plan, based on best practices, to make public procurement procedures more transparent, and help micro-, small and medium-sized companies to participate in tenders.

FURTHER PRIORITIES AHEAD

Hungary faces additional challenges to those tackled by its recovery and resilience plan (RRP). To secure long-term growth, it will be crucial for Hungary to: (i) address macroeconomic policy issues related to high debt financing needs, external competitiveness and the housing market; (ii) improve its business environment and institutions; (iii) upgrade its educational and health systems; and (iv) foster the green transition, taking into account territorial disparities. Hungary will need to address its economy's reliance on fossil fuels and improve the low energy efficiency of residential buildings. Hungary also needs to raise its level of ambition in policies targeting the labour market, skills, and the fight against poverty to be able to reach its national European Pillar of Social Rights targets. Addressing these challenges will also help make further progress in achieving the SDGs in which there is room for further improvement in Hungary, namely Zero hunger (SDG 2), Good health and well-being (SDG 3), Reduced inequalities (SDG 10), Responsible consumption and production (SDG 12), Climate action (SDG 13) and Peace, justice, and strong institutions (SDG 16).

Energy policy focuses on energy security, but decarbonisation should also be a priority

Hungary's energy sector continues to rely heavily on Russia, both for the supply of fossil fuels and for nuclear investments and fuels. Oil and gas constitute more than two thirds of Hungary's energy mix. Three quarters of Hungary's gas consumption is covered by imports from Russia ([14]). Due to its geographical location Hungary has no direct access to overseas liquefied natural gas (LNG) and relies on Russian gas imports. Hungary has a large gas storage capacity of 6.3 billion cubic metres, and fulfilled its gas storage obligations last winter. Russian crude oil accounts for about 60% of the country's oil imports and the only refinery continues to rely largely on oil imports from Russia. Expanding the capacity of the Adria pipeline through closer cooperation with its neighbours would improve Hungary's access to alternative sources of oil. Moreover, to move away from Russian crude, Hungary will have to invest to enable refineries, which are currently designed to process Ural crude almost exclusively, to process non-Russian oil.

Reducing Hungary's reliance on fossil fuels is an essential part of ensuring security of supply. Hungary has implemented some measures, such as measures in the public sector and the introduction of a two-tier price system for households. Due to these measures and other factors gas consumption decreased by about 21% between August 2022 and January 2023 (compared to the average over the previous five years). However, comprehensive structural efforts to decarbonise the economy are missing. Hungary has one of the highest figures in the EU for fossil fuel subsidies as a share of GDP. While energy prices have decreased, uncertainty remains regarding next winter, which requires continued efforts to structurally reduce gas demand.

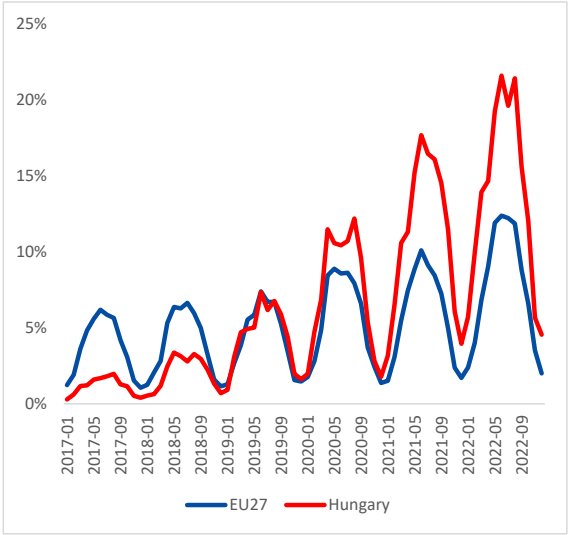
Renewable electricity installations have increased substantially, but constraints on grid capacity hinder further and rapid deployment. In recent years, Hungary has

([14]) Eurostat. In 2020, Hungary's natural gas imports from Russia amounted to 95% of total imports of natural gas. However, Hungary was a significant exporter of natural gas to neighbouring countries. Accounting for these energy exports, Hungary's import dependency on Russia was 76% of gross inland consumption for gas. These estimates assume that domestic production and imports from third countries are used to cover domestic consumption.

experienced a steep growth in solar energy capacity and its share of electricity production reached 13.7% in 2022 compared to the EU average of 7.6% (Graph 3.1). The progressive electrification of the economy, coupled with further energy-intensive investments in Hungary are expected to increase the demand for electricity. This will pose an additional challenge to Hungary, which already imports around one-third of the electricity it consumes each year. Despite the growing needs for energy, investment in energy infrastructure was one of the lowest in the EU in the last decade and was amounted to less than half of the investment made by regional peers ([15]). The limitations of the electricity grid's capacity, both at the distribution and transmission level, and the lack of ability for handling decentralised, weather-dependent electricity generation on the demand and supply sides, create a major constraint to the development of clean, renewable electricity production. However, investment in the grid is hindered by regulatory measures. Currently, a government decree prevents the energy regulator from setting network tariffs which would cover the cost of maintaining the grid. Suboptimal integration into the EU balancing energy market is also a missed opportunity to optimise the grid for additional renewables capacity.

The regulatory environment poses several challenges to the development of renewable energy. In the last decade, the expansion of wind energy generation capacity has been virtually on hold due to restrictive regulations and licensing procedures. Since 2020, the feed-in of companies' solar power generators has not been allowed and further restrictions were introduced in the summer of 2022. Since April 2021, no new accession right has been granted for solar power plants. In the last quarter of 2022, the government suspended, for an indefinite period, the possibility for small residential solar power generators to feed in into the grid. While Hungary committed to remove this ban by the end of 2024, the sudden change in grid connection rules and permitting have created uncertainty and hinder the deployment of residential solar power systems. In October 2022, the government abolished the generous feed-in tariffs for newly installed residential solar panels, however, the new tariff system is still unknown, adding to the uncertainty. A sizeable and rapid expansion of renewables, in particular through new wind power capacities and the untapped potential of geothermal energy and biomethane production, would support the electrification of the economy and the shift away from fossil fuels.

Graph 3.1: **Share of solar electricity in total electricity generation in Hungary and EU27, per month**



Source: Eurostat

Strengthening the energy efficiency of buildings through deep renovation is crucial for further energy savings. Residential buildings, which account for about one-third of energy consumption and about one-third of the total natural gas consumption, have low energy performance. Reducing energy consumption would not only lead to less dependence on Russian fossil fuels, but also to lower greenhouse gas emissions and other air pollutants. Until summer 2022, capped energy prices were amongst the lowest in the EU, which did not incentivise households to carry out energy efficiency renovations. Since the amendment in August 2022, capped utility prices are only applicable up to average household consumption. However, the current capped utility price system still does not allow the price signal mechanism to work properly

([15]) Between 2013 and 2021 Hungary's investment in electricity and gas was 0.6% of GDP per year on average, compared to 1.3% in regional peers.

and does not create sufficient incentives for energy savings. Price caps are uniformly applied for all households. High income households also benefit from subsidised administrative price while low-income families often live in less energy-efficient homes. Targeted schemes to low-income households would be more efficient both in supporting vulnerable households and generating energy savings. Ambitious measures to increase energy efficiency, focused on the building sector, including residential buildings, will be necessary for Hungary to reach its 2030 targets and to preserve the competitiveness of its economy. Promoting energy efficiency measures and strengthening price signals in the retail market would help make energy savings more permanent and shield the Hungarian energy system from future supply and price shocks.

The green transition requires a specialised workforce, while reskilling workers in sectors that are transforming is also needed. In 2022, labour shortages were reported in 31 occupations that required specific skills or knowledge for the green transition. 'Green jobs' are currently concentrated around biofuel and biomass technologies. Solar, wind and geothermal jobs combined account for less than one-tenth of renewable energy jobs. More green jobs would be created by tapping into the potential of geothermal, a further deployment of solar and wind, the roll-out of heat pumps and by boosting energy efficiency activities. Policies on upskilling and reskilling for the green transition - including for the people who are most affected - and to promote inclusive labour markets will be essential to accelerate the transition to net-zero and ensure that it is fair. The Just Transition Fund could support the adaptation process.

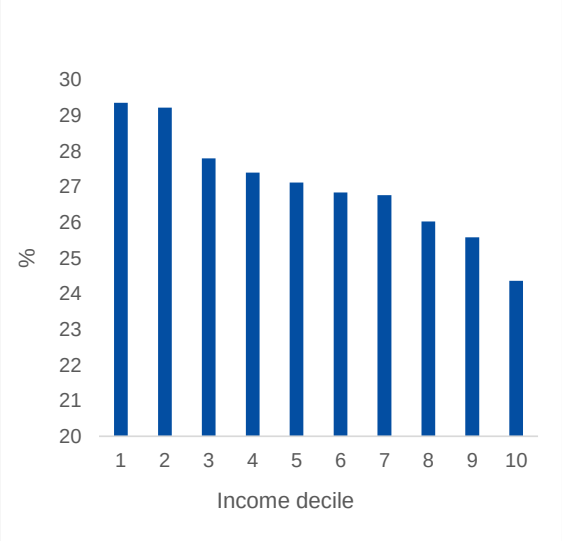
Disadvantaged groups have difficulties accessing adequate social, education, healthcare and job-seeking services

Poverty indicators show a mixed picture. While the overall poverty indicators have improved over the last decade, the relative situation of certain disadvantaged groups, such as low-income households, children, people with disabilities, Roma and people living in remote rural settlements has worsened. Disadvantaged groups face difficulties in accessing adequate social assistance, education, healthcare and assistance with seeking work. Hungary is among the four worst-performing Member States in the severe material and social deprivation rate. There are significant disparities between regions when it comes to the share of the population that is at risk of poverty or social exclusion, as well as severe material and social deprivation. The tax system places a disproportionate burden on lower-paid workers through a high income tax rate and high consumption taxes. The major sources of income for low-income households have not kept up with the cost of living in the last decade. The minimum income is one of the lowest in the EU (21% of the poverty threshold and 16% of the income of a low wage earner, as compared to 59% and 47%, respectively, in the EU). Further efforts are needed to achieve the national targets to reduce the share of families with children facing material and social deprivation to below 13% and thereby to lift at least 292 000 people out of poverty or social exclusion by 2030.

Recent increases in energy and food prices disproportionately burden low-income earners. Although a price cap was introduced in January 2022 on certain basic food products, the increase in food prices was still among the highest in the EU in 2022 (47.9% vs 17.8% in the EU). This particularly affected the poorest families (Graph 3.2) who spend the highest share of their income on food. As energy prices multiplied, the price cap on gas and electricity introduced in 2013 was

removed in 2022 for above-average consumption by households. However, there is a limited correlation between household income and energy consumption. Low-income families often live in less energy-efficient homes ([16]). Targeted direct support for low-income households would be more effective than the price cap on energy in helping these families.

Graph 3.2: **Inflation rate by income deciles, December 2022**



Source: Hungarian Statistical Office

Shortages of labour and an unutilised workforce are present at the same time. New manufacturing sites have difficulties finding local workers and therefore recruit people from other regions of Hungary or employ foreign workers. While the overall employment rate is relatively high, certain disadvantaged groups, such as Roma, people with a low level of education, women with caring responsibilities and people with disabilities, have difficulties finding jobs due to weaknesses in the education, training and social assistance systems and in support structures for job seekers.

The education system is not able to offer all students equal opportunities to acquire the necessary skills. About a quarter of 15-year-olds are low-achievers in basic skills, which poses challenges for any future efforts to upskill and reskill and for their employability. Pupils in 3-year vocational schools perform significantly below the national average, and the low number of hours devoted to developing their basic skills does not ensure an improvement by the time they graduate at age 17. Less than a third of pupils in vocational education and training benefit from work-based learning, one of the lowest in the EU ([17]). The early school leaving rate is also high and has not improved in the last decade. The share of Hungarians reaching at least a basic level of digital literacy level is below the EU average, but the situation is much worse among disadvantaged groups.

While the RRP includes measures on education, some parallel developments may impact their effectiveness. As part of the reforms in the plan, the government committed to increasing the salaries of teachers in the public education system by 2025 to at least 80% of the average salary of workers with higher education, using European Social Fund+ co-funding. While the purpose of this measure is to make the teaching profession more attractive, some other factors and initiatives have the opposite effect. These include teachers' high workload, the low level of school autonomy, the limited right to strike and a recent draft law (the so-called 'Status law') worsens teachers' working conditions.

Inadequate benefits and assistance while looking for work put disadvantaged groups at risk of being left behind. While the unemployment rate is low, the share of jobseekers with low basic skills is more than double the national average. The average time to find a job was 16 months in 2022, and 40% of registered jobseekers are without any benefits. The short, 3-month duration of unemployment benefits undermines the job matching and upskilling activities of the public employment service and makes it difficult to access to effective measures to get people

([16]) Tóth G., V. Jáger, Zs. Kovalszky. P. Bóday, D. Ádám and Á. Kincses (2023): A magyarországi háztartások energiafogyasztásának jellemzői az orosz–ukrán háború árnyékában, Statisztikai Szemle 101: 118-144 (in Hungarian).

([17]) Less than a third of pupils in vocational education and training are exposed to work-based learning, one of the lowest rates in the EU.

into work, training. Despite need for upskilling, the share of adults participating in a learning activity in the previous 4 weeks remains low, at 5.9% in 2021 compared to 10.8% in the EU, and is significantly lower among low-skilled and unemployed people. Significant investment in this area is necessary for Hungary to achieve its national target on adult participation in training by 2030, in the context of the European Pillar of Social Rights.

Social dialogue in Hungary remains among the weakest in the EU and has faced further challenges recently. The main tripartite body (the Permanent Consultation Forum of the Private Sector and the Government) serves mainly as an information-sharing and consultation forum that has no formal legal framework, with no meaningful dialogue except on setting the minimum wage. It meets sporadically (eight meetings in 2022). New legal provisions, adopted in May 2022, define the minimum level of service that teachers must provide at such a high level that it renders teachers' strikes ineffective, therefore seriously curbing their right to collective action. Furthermore, new legislation, introduced in January 2023 without any social dialogue, increased employers' ability to dismiss teachers participating in civil disobedience to protest working conditions.

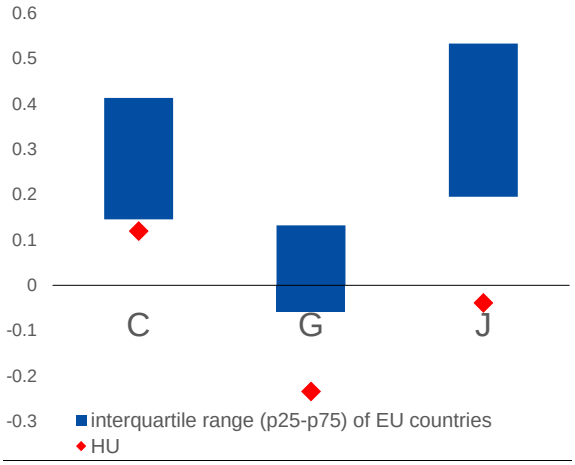
The business environment is unequal and hindered by regulatory uncertainty

Some features of the business environment are positive for companies. The corporate tax rate is the lowest in the EU and the government provides significant support for companies' investment projects, sometimes amounting to more than 10% of the investment cost. Moreover, there are generous state subsidies (the second highest in the EU, and 16% of business R&D is financed by the state) for companies' R&D activities. The tax burden on labour has decreased significantly since 2016, and the relaxation of the employment protection regulation allows companies to manage their staffing and wage levels flexibly and from a powerful position. These factors may have increased the share of capital income within the total of value added in the last decade (from around 43% to 48% between 2011 and 2021) and made Hungary an attractive location for the labour-intensive, cost-sensitive production processes of global value chains. Hungary is also used for cross-border tax optimisation (see more details in Annex 19).

Some firms and industries, however, face an adverse business environment. Taxes, price caps and tailor-made regulations that are imposed at short notice and without prior consultation on specific industries and firms weaken legal certainty and are detrimental to business planning. Budgetary revenues from sector-specific taxes amount to 1.5% of GDP, while these industries account for only 10% of gross operating surplus in the private sector. In comparison, corporate income tax, whose tax base is ten times larger, provides 1.2% of GDP to the budget. Since 2020 the government has also used its extraordinary power under the 'state of danger' to introduce sector-specific taxes, price controls and other regulations at short notice and without prior consultation. For example, the government recently imposed administrative price caps and a 90% profit tax on the production of cement and ceramic materials, i.e. in industries with high shares of foreign ownership. In December 2022, the government suddenly increased the tax on insurance and pharmaceutical companies. As a result of the additional sector-specific taxes, the earlier positive trend in reducing the number of taxes has reversed in 2022 ([18]). Banks were burdened by a cap on flexible mortgage rates, impacting their ability to lend and profitability. Selective administrative inspections, fines and arbitrary decisions such as withholding of permits have been used to exert undue pressure on certain companies. Effective remedy seems to be lacking against arbitrary measures of the authorities.

([18]) The number of taxes decreased from around 60 to 51 from 2016 to 2021, then increased again to 59 in 2022.

Graph 3.3: **Allocative efficiency of labour within industry between firms**



(1) Positive (or negative) numbers indicate that employment is concentrated in firms with above (or below) average productivity. (2) Sectors: C: Manufacturing, G: Wholesale and retail trade, J: Information and communication

Source: European Commission based on 2018 Orbis data

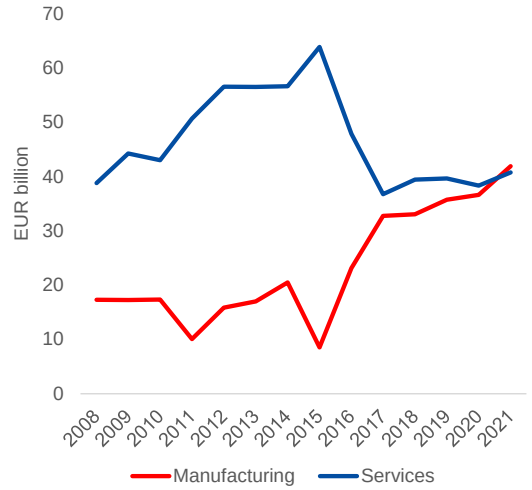
The retail sector continues to face unpredictable regulations. The conditions for authorising the establishment of or changes to shops above 400 m^2 do not seem to be transparent and the availability of judicial review is questionable. In retail, frequent changes in regulation have created a chronically unstable business environment. Specific retail restrictions e.g., introduction of price caps for certain foodstuffs, a very progressive retail tax ([19]) and mandatory weekly promotions in large supermarkets prevent efficiency gains and affect competition. For example, employment in the Hungarian retail trade tends to be more concentrated in less productive firms, which is in contrast with most EU countries (see Graph 3.3). The recently introduced price caps do not seem to have attained their objective of containing inflation, which remains the highest in the EU. The tax on the retail sector disproportionately burdens larger companies that do not have their headquarters in Hungary. These companies also allege that they are subject to disproportionate enforcement actions related to the implementation of the price caps.

The state is also active in influencing the market structure in certain sectors. The government frequently uses its power to exempt transactions from merger control by declaring them 'of strategic importance'. As a result, the impact of such transactions on the economy, competition and the single market is not being assessed. The criteria for these exemptions are not set out transparently, and there is no formal procedure to contest these criteria or the decision itself. There have been more than 30 such interventions since 2014. These interventions have tended to discourage or limit EU and foreign investment, in effect enabling the purchase of companies by state-owned enterprises or private firms with close ties to the government ([20]). As a result, state or state-friendly domestic ownership increased in banking, telecommunications, utilities, the media, TV and radio broadcasting to the detriment of foreign ownership. Based on announcements by members of the government, similar transactions can be expected in insurance, retail and the transport sector, notably regarding the Budapest Airport. Using the regulatory power, several services, such as textbook publishing, fertility clinics, cash-in-transit market and tobacco wholesale and retail are entrusted to state-owned or private firms, specifically created for these purposes, which operate without competition. These transactions concern to a significant degree foreign investors, also from other Member States, thereby seriously affecting the principles of the internal market. The decreased presence of foreign capital (Graph 3.4) and know-how, in particular in high value added industries like banking and telecommunication, risks curbing Hungary's opportunities for productivity growth and innovation.

([19]) The tax rate is 0% up to HUF 0.5 billion, 0.15% up to HUF 30 billion, 1% up to HUF 100 billion and 4.1% of the turnover above HUF 100 billion.

([20]) For example, in February 2023, the state and a private firm close to the government bought Vodafone, the second largest telecommunication company in Hungary, for EUR 1.9 billion.

Graph 3.4: **FDI stock in Hungary, 2008-2021**



(1) Services: NACE Rev2 code: G,H,I,J,K,L,M,N,O,P,Q,R,S)
Source: National Bank of Hungary

There is a lack of highly skilled workers. The education system may provide a workforce for manufacturers producing products with low value-added, but to achieve higher productivity, more students with a university education are needed. The government modified the management structure of almost all universities ([21]) with the stated objective of increasing their performance. The positions in the boards of the public interest trusts managing the universities were filled with politicians and people close to the government and the boards took over responsibilities from the academic communities. The reduced academic freedom of universities, together with the shortage of skilled researchers and scientists, is having a negative impact on R&D activity. Spending on R&D by public institutions is very low, and almost all of it comes from the EU. This has an impact on the competitiveness of the economy.

Ensuring a prudent fiscal policy is a priority and calls for a more robust budgetary framework

The budgeting practices of recent years have exacerbated the procyclicality of fiscal policy ([22]). Since 2016, the annual budgets have been adopted in early summer, several months earlier than is customary among OECD countries. The early preparation of the budgets has reduced the quality and reliability of the macroeconomic and budgetary forecasts, leading to recurring positive growth surprises and unplanned additional revenues. Given various flexibility rules embedded in the annual budget laws, those additional revenues were used for higher discretionary spending above the limits set in the budgetary appropriations/ceilings. This has led to a more procyclical fiscal stance than initially planned in the adopted budgets (see the 2020 country report and Chapter III of the 2023 In-Depth Review). Ad hoc spending decisions were often made at the end of the budgetary year or were enacted by government decrees throughout the year without adequate parliamentary oversight and public consultation, in turn reducing the budget transparency. The budgets have also consistently included large reserves which were spent if the official deficit target was on track. All these aspects of the planning and execution of the budget have increased the likelihood of high deficits in good economic times.

The fiscal framework does not provide a strong enough foundation for a prudent and transparent fiscal policy. According to the EU fiscal governance indicators, the design of Hungary's national fiscal rules and medium-term budgetary frameworks is among the weakest in the EU. The annual deficit targets set out in the medium-term plans are often

([21]) The management and financing of most public universities in Hungary have been transferred to private trust funds. Meanwhile, university staff have become private instead of public employees, which reduces their protection against dismissal. All important decisions are made by the boards of trustees, whose members have close ties to the government and were initially appointed by the government for life.

([22]) Fiscal policy can be described as procyclical when government increases government spending and reduces taxes during an economic expansion, but reduces spending and increases taxes during a recession. Procyclical policies magnify economic or financial fluctuations and may contribute to a build-up of vulnerabilities in the economy.

revised and have only limited bearing on the longer-term planning of the budgets. The effective constraint on fiscal policy at national level is set by the debt reduction rule set out in the Fundamental Law ([23]). This rule, however, has procyclical features, as it induces restrictions on fiscal policy when growth and inflation are moderate, and allows for more spending and tax reductions when there is higher growth and inflation. The budget balance rules set out in the 2011 Stability Act, which are aimed at aligning annual budgets with the 3% deficit ceiling and with the medium-term budgetary objective defined by the European fiscal rules, play only an auxiliary role during the adoption of the budget ([24]). The national fiscal council's limited mandate and low operational capacities limit its effectiveness in steering public discussions on fiscal issues. Further analysis of the fiscal framework is available in the thematic chapter of the In-Depth Review**.**

Housing policies have boosted demand and prices more than supply

House prices have grown strongly in Hungary in the last decade, while the housing supply has remained limited. House prices have doubled in Hungary over the last decade. The affordability of housing has become a more pressing issue with the price-to-income ratio now exceeding its peak before the global financial crisis of 2008-2009. In contrast, residential building activity has remained low by historical standards and has been unable to meet the housing demand. However, tighter financing conditions have led to a sharp drop in housing transactions and mortgage applications since summer 2022, which foreshadows a correction of house prices and weaker construction activity.

Weakly targeted subsidy schemes have contributed to recent price increases. Grants and subsidised loan schemes were significantly expanded in 2016. These measures are now less targeted, which has allowed higher-income households that already own a dwelling to benefit from these schemes for investment purposes. In 2022, subsidised schemes accounted for 37% of all household loan disbursements. These schemes remain in place for the time being, but the government has hinted at their possible reform later in 2023.

Regulatory uncertainty has negatively affected the housing supply. The VAT rate on new housing has changed five times since 2016 as a temporary rate cut was repeatedly extended and a new reduction for certain brownfield projects was introduced. The application of stricter energy efficiency standards for new buildings has been postponed three times. Labour and material shortages in the construction sector were further bottlenecks to homebuilding, and were aggravated by years of high public investment that have driven up costs.

Rental markets are hampered by under-regulation and a shortage of social housing for rent. Housing institutions and policies are geared towards homeownership. More developed rental markets could alleviate labour shortages in fast-developing regions by making it easier for people to move location and make housing more affordable for young and low-income households. Currently, some 8% of households are tenants, and 3.5% pay subsidised rents. The rental of dwellings is loosely regulated in Hungary, which can hinder long-term contracts. Renting is also burdened by a high VAT rate, further discouraging professional investors from entering private rental markets. Regulatory issues include the lack of clarity over the responsibilities of the parties in a rental contract, and the lack of

([23]) According to the debt rule, if the general government debt exceeds 50% of GDP, the Parliament may only adopt an act on the central budget that leads to a reduction in the debt of at least 0.1% of GDP in normal economic times.

([24]) The legal grounding of the budget balance rules in the fiscal framework is weaker, as non-compliance with those rules *ex ante* does not prevent the Parliament from adopting the budget and there are no predefined consequences in case of *ex post* non-compliance (those have been deactivated by the national escape clauses since the COVID-19 crisis).

efficient mechanisms to resolve disputes ([25]). The supply of social rental is limited, with the number of dwellings owned by municipalities accounting for 2.3% of housing stock in 2021.

([25]) See e.g. MNB (2019): Housing Market Report, May 2019. Magyar Nemzeti Bank. See also Habitat (2020): Feketelakás 3.0, Habitat for Humanity Magyarország (in Hungarian).

KEY FINDINGS

Hungary's RRP includes measures to address a series of structural challenges through:

- reforming the pension system to improve the long-term sustainability of public finances, while preserving its adequacy, in particular by addressing income inequalities;
- simplifying the tax system, while strengthening it against the risk of aggressive tax planning;
- better integration of women into the labour market and helping working parents by increasing the number of places in crèches;
- reducing territorial disparities and supporting access to social services, healthcare and adequate housing for all, including by building or renovating social housing and providing support for energy costs for the inhabitants of the 300 most disadvantaged settlements;
- improving education outcomes by making the teaching profession more attractive and promoting greater participation of disadvantaged groups in quality mainstream education;
- improving access to quality preventive and primary care services by modernising hospital care, and through the digitalisation of services;
- increasing investment in digitalisation and green and digital skills by increasing the use of digital equipment in education, the digitalisation of the public administration and the health, transport and energy sectors, and through support for research and innovation;
- increased competition in public procurement by reducing the share of single bid procedures and increasing the transparency of procedures;
- strengthening judicial independence and reinforcing the anti-corruption framework, including by improving prosecutorial efforts, setting up an integrity authority, introducing an effective judicial review against the decisions of the prosecution service, and facilitating public access to information;
- improving the quality and transparency of the decision-making process through regular public consultations and appropriate impact assessments;
- speeding up the deployment of renewable energy, in particular by streamlining the procedures for permits and upgrading the electricity infrastructure;
- reducing the dependency on fossil fuels in buildings and transport by stepping up efforts on energy efficiency measures for all, especially in residential houses and in the electrification of transport;
- promoting sustainable water and waste management and the circularity of the economy.

Hungary should urgently fulfil the required milestones and targets in order to allow for a swift and steady implementation of its recovery and resilience plan, and swiftly finalise the REPowerEU chapter with a view to rapidly starting its implementation.

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

- Pursuing effective coordination and clear demarcation of policies to ensure fiscal and external sustainability;

- phasing out price and interest rate caps to facilitate the smooth transmission of monetary policy and targeting support measures in the housing sector to low-income households;

- strengthening the medium-term budgetary framework;

- better aligning the preparation of annual budgets with the budgetary year and limiting discretion in the use of budgetary appropriations and budgetary reserves;

- better integration of the most disadvantaged groups, such as Roma, in the labour market, in particular through upskilling and ensuring better unemployment benefits;

- ensuring better social assistance and equal access for all to essential services and decent housing;

- increasing investment in the digitalisation of businesses;

- improving the regulatory framework and competition in services by avoiding selective and arbitrary administrative interventions and the use of tailor-made legislation providing undue advantage or disadvantage to specific companies;

- applying competition scrutiny systematically to business transactions and reducing the use of emergency measures to what is the strictly necessary;

- ensuring effective social dialogue;

- reducing overall reliance on fossil fuels by accelerating the deployment of renewables, including wind energy, geothermal and sustainable biomethane in particular by streamlining the permit procedures, while conducting regular environmental impact assessments and by creating a supportive and predictable regulatory environment;

- reforming balancing energy market rules and tariff setting to allow for cost recovery and an optimum use of the grid and, where necessary, upgrade the electricity infrastructure, including grid and storage capacities;

- diversifying imports of fossil fuels to significantly decrease dependence on Russia, including by strengthening cooperation with other Member States, including where necessary on infrastructure;

- improving energy efficiency, in particular in buildings, and continue efforts to reduce overall gas consumption;

- adjusting the current system of regulated energy prices to encourage energy saving while providing targeted support for low-income households;

- improving energy efficiency and continuing efforts to reduce gas consumption; reducing dependency on fossil fuels in buildings, particularly by stepping up efforts to roll out heat pumps; promoting energy efficiency measures for all, especially in residential buildings;

- using appropriate financial instruments to overcome market barriers and remove barriers to the price signalling on energy, while providing targeted direct support for low-income households;

- stepping up policy efforts aimed at the provision and acquisition of the skills needed for the green transition.

ANNEXES

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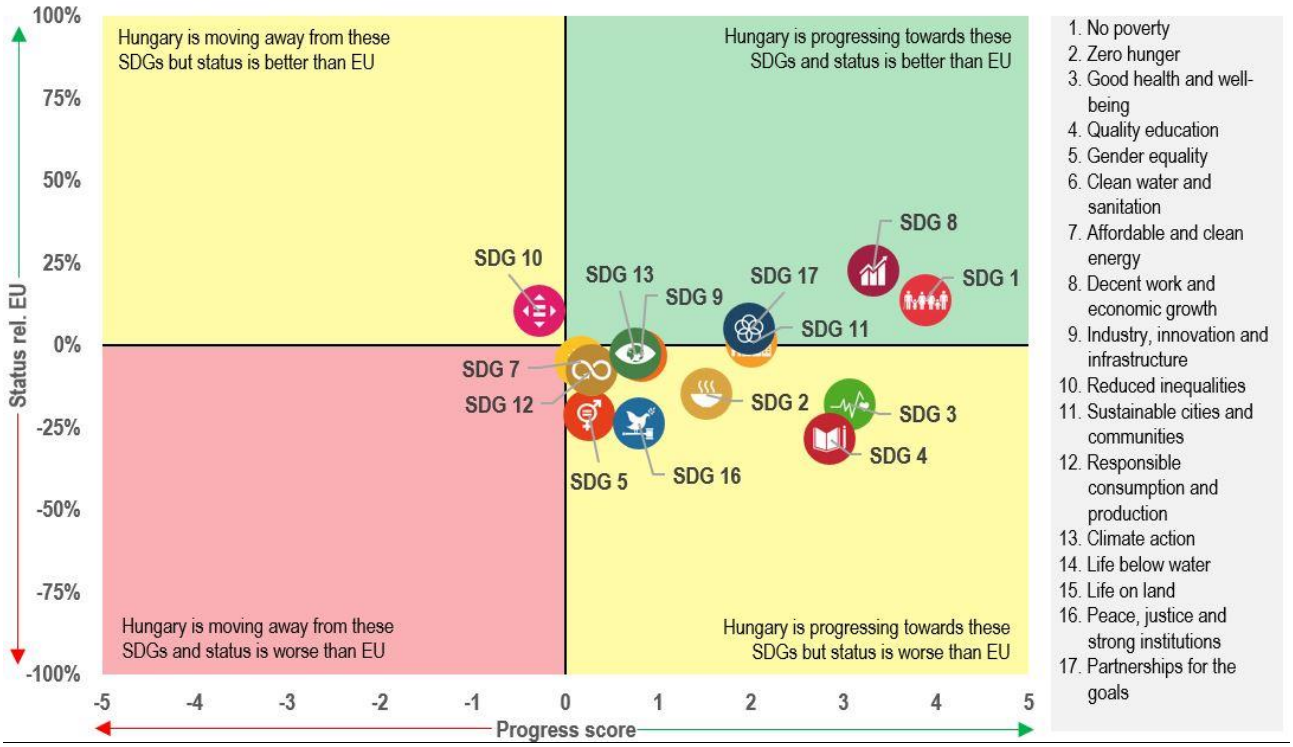
ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

This Annex assesses Hungary'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 Hungary is improving on some SDGs related to *environmental sustainability* (SDGs 9, 11), for the rest (SDGs 2, 7, 12, 13) it still needs to catch up with the EU average. On SDG 7 (Affordable and clean energy), Hungary is moving away from the EU average. Hungary's share of renewable energy in gross final energy production decreased from 14.4% in 2016 to 14.1% in 2021 and lags significantly behind the EU average (21.8% in 2021). There is a lot of space for improvement as regards the circular economy with low and stagnating indicators such as the rate of recycling for municipal waste and the circular material use rate. On a positive note, Hungary's net greenhouse gas emissions (SDG 13; 6.0 tonnes per capita in 2021) are kept below the EU average (7.4 tonnes per capita in 2021). The country performs well for the share of buses and trains in passenger transport (SDG 9; 21.2% in 2020 against the EU average of 12.8%) as well as for the share of rail and inland waterways in freight transport (SDG 9; 30.8% in 2021 against the EU average of 22.7%). The RRP includes measures to facilitate the development of renewable energy and improve the sustainability of transport, water management, and the circular economy.

Graph A1.1: **Progress towards the SDGs in Hungary in the last 5 years**



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). The status of each SDG in a country is the aggregation of all the indicators for the specific goal compared to the EU average. 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 early April 2023, except for the EU Labour Force Survey (LFS) indicators released on 27 April 2023. Data mainly refer to 2016-2021 or 2017-2022.

In the field of *fairness,* Hungary performs well on SDGs 1 and 8 (poverty and employment), while it is moving away from SDG 10 (reduced inequalities) and needs to catch up with the EU average in other SDGs (SDGs 3, 4, 5). Hungary recorded significant progress in the indicators linked to people at risk of poverty or social exclusion (SDG 1; from 28.6% of the population in 2016 to 19.4% in 2021) and the severe material and social deprivation rate (SDG 1; from 20.6% of the population in 2016 to 10.2% in 2021). It also performs well on people at risk of income poverty after social transfers (SDG 1; 12.6% of the population in 2021 against the EU average of 16.8%). Regarding SDG 3 (Good health and well-being), Hungary needs to catch up, primarily on decreasing the obesity rate and standardised avoidable mortality. In education, Hungary needs to catch up with the EU on tertiary educational attainment (SDG 4; 31.9% of the population aged 25 to 34 in 2022 against the EU average of 422%). The gender pay gap in unadjusted form (SDG 5; 17.2% of average gross hourly earnings for men in 2020 against the EU average of 13%) is still above the EU average. The RRP supports social development in disadvantaged settlements and aims at improving higher and vocational education and at modernising the health sector.

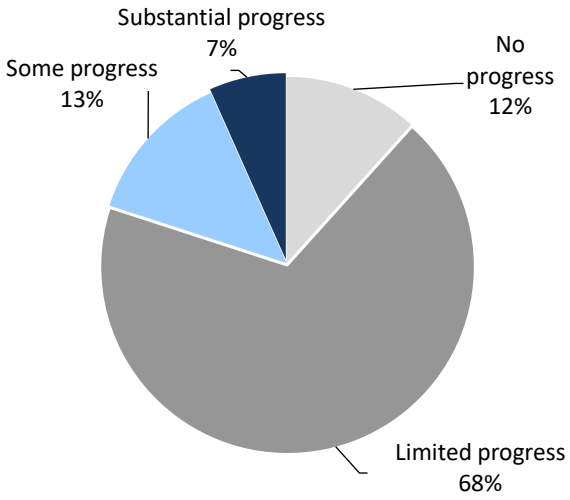
Hungary is improving on all SDGs related to *productivity* (SDGs 4, 8, 9). Its investment share of GDP (SDG 8; 27.4% in 2021) continues to be above the EU average (23.2%) even though the country's gross domestic expenditure on R&D (SDG 9; 1.65% of GDP in 2021) still needs to catch up with the EU average (2.26% in 2021). Applications to the European Patent Office (SDG 9) is another indicator in which Hungary needs to catch up to the EU average. The country recorded exceptional development, particularly in the share of households with a high-speed internet connection (SDG 9; 78.6% of households in 2021 compared to 24% of households in 2016) surpassing the EU average (70.2% of households in 2021). The RRP includes measures to support the development of research and development cooperation and to accelerate digitalisation in education, public administration as well as of the health, transport, and energy sectors.

Hungary is improving on both SDGs related to *macroeconomic stability* (SDGs 8 and 17) but needs to catch up with the EU average for SDG 16 (Peace, justice and strong institutions). For SDG 16, in order to catch up with the rest of the EU, Hungary could make considerable progress on, in particular, general government total expenditure on law courts, perceived independence of the judicial system, and the Corruption Perceptions Index. The RRP includes reforms to improve public finances, measures in areas related to the rule of law and the anti-corruption framework as well as reforms to strengthen judicial independence.

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 2019-2022 country-specific recommendations (CSRs) ([26]) addressed to Hungary 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 (see Annexes 1 and 3). The assessment considers the policy action taken by Hungary to date ([27]) and the commitments in its recovery and resilience plan (RRP) ([28]). At this stage of RRP implementation, 20% of the CSRs focusing on structural issues from 2019-2022 have recorded at least 'some progress', while 68% recorded 'limited progress' (see Graph A2.1). As the RRP is implemented further, considerable progress in addressing structural CSRs is expected in the years to come.

Graph A2.1: **Hungary's progress on the 2019-2022 CSRs (2023 European Semester)**



Source: European Commission

([26]) 2022 CSRs: EUR-Lex - 32022H0901(17) - EN - EUR-Lex (europa.eu)

2021 CSRs: EUR-Lex - 32021H0729(17) - EN - EUR-Lex (europa.eu)
2020 CSRs: EUR-Lex - 32020H0826(17) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32019H0905(17) - EN - EUR-Lex (europa.eu)

([27]) 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).

([28]) Member States were asked to effectively address all or a significant subset of the relevant country-specific recommendations issued by the Council in 2019 and 2020 in their RRPs. 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, whihch are not yet 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 2019-2022 CSRs**

Hungary	Assessment in May 2023*	RRP coverage of CSRs until 2026**	Relevant SDGs
2019 CSR 1	**Not relevant anymore**		
Ensure compliance with the Council Recommendation of 14 June 2019 with a view to correcting the significant deviation from the adjustment path towards the medium-term budgetary objective.	Not relevant anymore	Not applicable	SDG 8, 16
2019 CSR 2	**Limited progress**		
Continue the labour market integration of the most vulnerable groups, in particular through upskilling, and	Limited progress	Relevant RRP measures planned as of 2023, 2024, and 2026.	SDG 4, 8, 10
improve the adequacy of social assistance and unemployment benefits.	No progress		SDG 1, 2, 10
Improve education outcomes and increase the participation of disadvantaged groups, in particular Roma in quality mainstream education.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024 and 2025.	SDG 4, 8, 10
Improve health outcomes by supporting preventive health measures and strengthening primary healthcare.	Limited progress	Relevant RRP measures planned as of 2021, 2023, 2024 and 2026.	SDG 3, 16
2019 CSR 3	**Limited progress**		
Focus investment-related economic policy on research and innovation,	Limited progress	Relevant RRP measures planned as of 2023 and 2026.	SDG 9, 10, 11
low-carbon energy,	Some progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025.	SDG 7, 9, 10, 11, 13
transport infrastructure, and	Some progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 10, 11
waste management and	Limited Progress	Relevant RRP measures planned as of 2023 and 2026.	SDG 6, 10, 11, 12, 15
energy and resource efficiency, taking into account regional disparities.	Limited progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 6, 7, 10, 11, 12, 15
Improve competition in public procurement.	Limited progress	Relevant RRP measures planned as of 2022 and 2023.	SDG 9
2019 CSR 4	**Limited Progress**		
Reinforce the anti-corruption framework, including by improving prosecutorial efforts and access to public information, and	Limited Progress	Relevant RRP measures planned as of 2022 and 2023.	SDG 16
strengthen judicial independence.	Some Progress	Relevant RRP measures planned as of 2023.	SDG 16
Improve the quality and transparency of the decision-making process through effective social dialogue and engagement with other stakeholders and through regular, appropriate impact assessments.	Limited Progress	Relevant RRP measures planned as of 2022.	SDG 8, 16
Continue simplifying the tax system, while strengthening it against the risk of aggressive tax planning.	Limited progress	Relevant RRP measures planned as of 2023, 2024 and 2025.	SDG 8, 10, 12, 16
Improve competition and regulatory predictability in the services sector.	No progress		SDG 9, 16
2020 CSR 1	**Limited progress**		
Take all necessary measures, in line with the general escape clause of the Stability and Growth Pact, to effectively address the COVID-19 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
Address shortages of health workers and ensure an adequate supply of critical medical products and infrastructure to increase the resilience of the health system.	Limited Progress	Relevant RRP measures planned as of 2021, 2023, 2024 and 2026.	SDG 3
Improve access to quality preventive and primary care services.	Limited progress	Relevant RRP measures planned as of 2021, 2023, 2024 and 2026.	SDG 3
2020 CSR 2	**Limited progress**		
Protect employment through enhanced short-time working arrangements and effective active labour-market policies and extend the duration of unemployment benefits.	Limited progress	Relevant RRP measures planned as of 2023, 2024, and 2026.	SDG 1, 2, 8, 10
Improve the adequacy of social assistance and ensure access to essential services and	Limited Progress	Relevant RRP measures planned as of 2023, 2024, and 2026.	SDG 1, 2, 10
quality education for all.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024 and 2025.	SDG 4
2020 CSR 3	**Some progress**		
Ensure liquidity support to SMEs.	Substantial progress		SDG 8, 9
Front-load mature public investment projects and	Some progress		SDG 8, 16
promote private investment to foster the economic recovery.	Substantial progress		SDG 8, 9
Focus investment on the green and digital transition, in particular clean and efficient production and use of energy,	Limited Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024 and 2025.	SDG 7, 9, 13
sustainable transport,	Some progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 11
water and waste management,	Limited Progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 6, 12, 15
research and innovation, and	Limited progress	Relevant RRP measures planned as of 2023 and 2026.	SDG 9
digital infrastructure for schools.	Some Progress	Relevant RRP measures planned as of 2022 and 2024.	SDG 4, 9, 16
2020 CSR 4	**Limited progress**		
Ensure that any emergency measures be strictly proportionate, limited in time and in line with European and international standards and do not interfere with business activities and the stability of the regulatory environment.	No Progress		SDG 16
Ensure effective involvement of social partners and stakeholders in the policy-making process.	No progress	Relevant RRP measures planned as of 2022 and 2024.	SDG 8, 16
Improve competition in public procurement.	Limited progress	Relevant RRP measures planned as of 2022 and 2023.	SDG 9
2020 CSR 5	**Limited progress**		
Strengthen the tax system against the risk of aggressive tax planning.	Limited Progress	Relevant RRP measures planned as of 2023, 2025 and 2026.	SDG 8, 16
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.	Substantial Progress	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.	Limited Progress	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 national 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.*	Limited Progress	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.	Limited Progress	Not applicable	SDG 8, 16

(Continued on the next page)

Table (continued)

2022 CSR 1	**Some 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.	Limited Progress	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions.	Limited Progress	Not applicable	SDG 8, 16
Improve the long-term sustainability of the pension system, while preserving adequacy in particular through addressing income inequalities.	Limited progress	Relevant RRP measures planned as of 2023.	SDG 8
2022 CSR 2			
Swiftly finalise the negotiations with the Commission on 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**		
Continue the labour-market integration of the most-vulnerable groups, in particular through upskilling, and extend the duration of unemployment benefits.	Limited progress	Relevant RRP measures planned as of 2023, 2024, and 2026.	SDG 1, 2, 4, 8, 10
Improve the adequacy of social assistance and ensure access to essential services and adequate housing for all.	Limited progress	Relevant RRP measures planned as of 2023, 2024, and 2026.	SDG 1, 2, 10
Improve education outcomes and increase the participation of disadvantaged groups, in particular Roma, in quality mainstream education.	Limited progress	Relevant RRP measures planned as of 2022, 2023, 2024 and 2025.	SDG 4, 8, 10
Improve access to quality preventive and primary care services.	Limited progress	Relevant RRP measures planned as of 2021, 2023, 2024 and 2026.	SDG 3
2022 CSR 4	**Limited progress**		
Reinforce the anti-corruption framework, including by improving prosecutorial efforts and access to public information, and	Limited progress	Relevant RRP measures planned as of 2022 and 2023.	SDG 16
strengthen judicial independence.	Some progress	Relevant RRP measures planned as of 2023.	SDG 16
Improve the quality and transparency of the decision-making process through effective social dialogue, engagement with other stakeholders and regular impact assessments.	Limited progress	Relevant RRP measures planned as of 2022.	SDG 16
Continue simplifying the tax system.	Limited progress	Relevant RRP measures planned as of 2023, 2024 and 2025.	SDG 8, 10, 12
Improve regulatory predictability and competition in the services sector, in particular in retail and utilities, and apply competition scrutiny systematically in business transactions.	No progress		SDG 9
Improve competition in public procurement.	Limited progress		SDG 9
2022 CSR 5	**Limited progress**		
Promote reform and investment on sustainable water and waste management and the circularity of the economy,	Limited progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 6, 12, 15
the digitalisation of businesses,	Limited progress		SDG 9
green and digital skills, and	Limited progress	Relevant RRP measures planned as of 2022, 2023 and 2026.	SDG 4
research and innovation.	Limited progress	Relevant RRP measures planned as of 2023 and 2026.	SDG 9
2022 CSR 6	**Limited progress**		
Reduce overall reliance on fossil fuels	No progress	Relevant RRP measures planned as of 2022 and 2026.	SDG 7, 9, 13
by accelerating the deployment of renewables, in particular by streamlining the permitting procedures	Limited progress	Relevant RRP measures planned as of 2023 and 2024.	SDG 7, 8, 9, 13
and the upgrading of the electricity infrastructure.	Limited progress	Relevant RRP measures planned as of 2022, 2023 and 2025.	SDG 7, 9, 13
Diversify imports of fossil fuels by, inter alia, strengthening interconnection with the participation of other countries.	No progress		SDG 7, 9, 13
Reduce the dependency on fossil fuels in buildings and transport by stepping up efforts on energy-efficiency measures for all, especially in residential houses	Limited progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 7
and on sustainable transport, in particular through electrification.	Some progress	Relevant RRP measures planned as of 2023, 2024 and 2026.	SDG 11

Note:

* See footnote ([26])

** RRP measures included in this table contribute to the implementation of CSRs. Nevertheless, additional measures outside the RRP are 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.

The Recovery and Resilience Facility (RRF) is the centrepiece of the EU's efforts to help it recover from the COVID-19 pandemic, speed up the twin transition and strengthen resilience against future shocks. The RRF also contributes to implementation of the SDGs and helps to address the Country Specific Recommendations (see Annex 4). Hungary submitted its current recovery and resilience plan (RRP) on 12 May 2021. The Commission's positive assessment on 30 November 2022 and Council's approval on 15 December 2022 paved the way for disbursing EUR 5.811 billion in grants under the RRF over the 2021-2026 period.

Table A3.1:**Key elements of the Hungary's RRP**

	Current RRP
Scope	Initial plan
CID adoption date	15 December 2022
Total allocation	EUR 5.8 billion in grants (3.77% of 2021 GDP)
Investments and reforms	54 reforms and 31 investments
Total number of milestones and targets	270

Source: European Commission

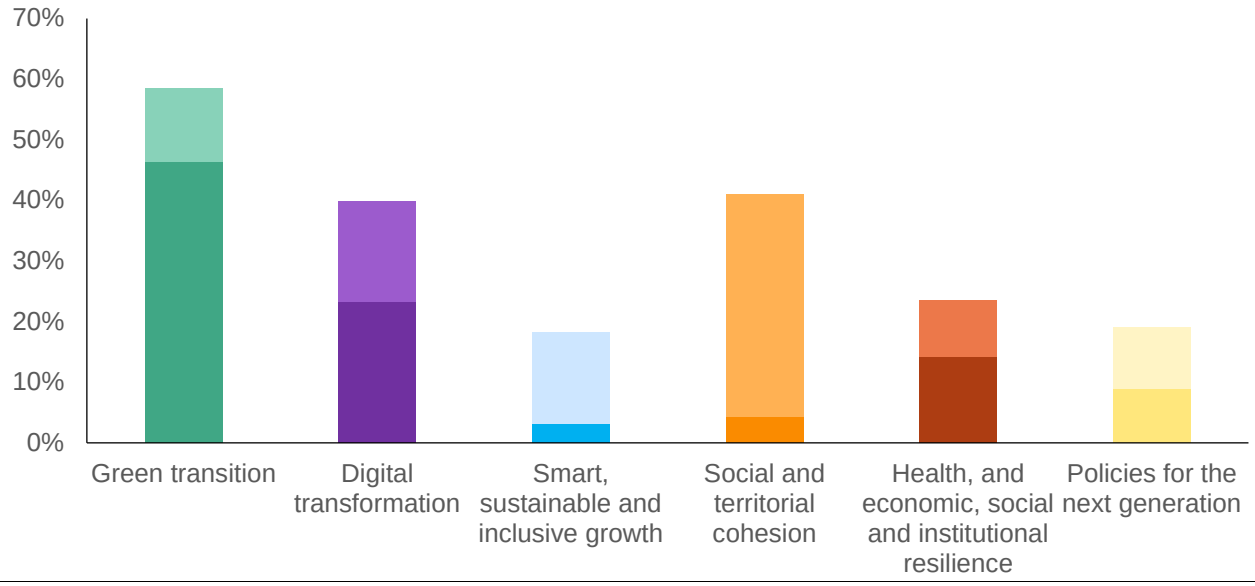
Since the entry into force of the RRF Regulation and the assessment of the national recovery and resilience plans, geopolitical and economic developments have caused major disruptions across the EU. In order to effectively address these disruptions, the (adjusted) RRF Regulation allows Member States to amend their recovery and resilience plan for a variety of reasons. In line with article 11(2) of the RRF, the maximum financial contribution for all Member States were updated on 30 June 2022. Given that the Council approved Hungary's RRP after this update, the updated amount of EUR 5.811 billion in grants was incorporated into RRP. Hungary has not submitted its request for RRP amendment by the time of publication of this report.

No funds have so far been disbursed to Hungary under the RRF as it has yet to submit its first payment request.

Hungary's progress in implementing its plan is published in the Recovery and Resilience Scoreboard ([29]). The Scoreboard also gives an overview of the progress made in implementing the RRF as a whole, in a transparent manner. The graphs below show the current state of play of the milestones and targets to be reached by Hungary and subsequently assessed as satisfactorily fulfilled by the Commission.

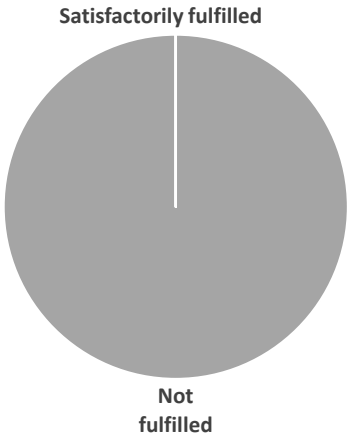
([29]) https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

Graph A3.1: **Share of RRF funds contribution to each policy pillar**



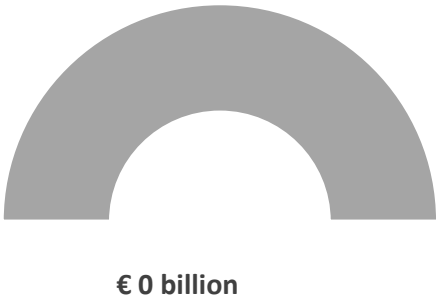
Note: Each measure contributes towards two policy areas of the six pillars, therefore the total contribution to all pillars displayed on this chart amounts to 200% of the estimated cost of the RRP. The bottom part represents the amount of the primary pillar, the top part the amount of the secondary pillar.
Source: RRF Scoreboard https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

Graph A3.2: **Fulfilment status of milestones and targets**



This graph displays the share of satisfactorily fulfilled milestones and targets. 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.
Source: RRF Scoreboard https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

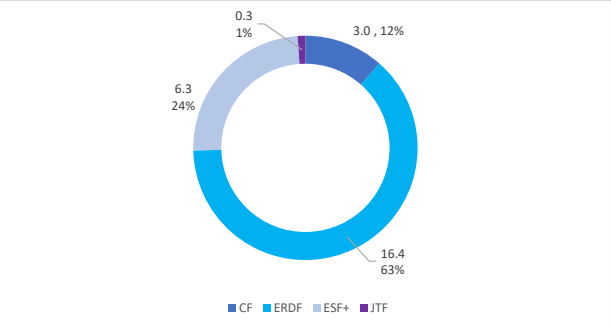
Graph A3.3: **Total grants disbursed under the RRF**



Note: This graph displays the amount of grants 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 https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

The EU budget of over EUR 1.2 trillion for 2021-2027 is geared towards implementing the EU's main priorities. Cohesion policy investment amounts to EUR 392 billion across the EU and represents almost a third of the overall EU budget, including around EUR 48 billion invested in line with REPowerEU objectives.

Graph A4.1: **Cohesion policy funds 2021-2027 in Hungary: budget by fund**

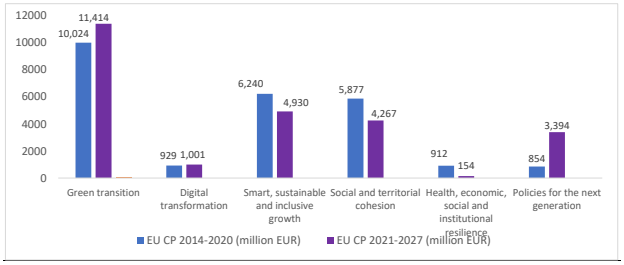


(1) billion EUR in current prices, % of total; (total amount including EU and national co-financing)
Source: European Commission, Cohesion Open Data

In 2021-2027, in Hungary, cohesion policy funds ([30]) **will invest EUR 11.4 billion in the green transition and EUR 1 billion in the digital transformation as part of the country's total allocation of EUR 26.1 billion.** In particular, the European Regional Development Fund (ERDF) will develop research and innovation capacities, enhance the competitiveness of SMEs and support the digitalisation of 28 000 SMEs. It will contribute to increased renewable energy production and the reduction of primary energy consumption. Particular attention should be paid to reducing territorial disparities between the four least developed regions and the rest of the country. For this purpose, 65% of ERDF and European Social Fund Plus (ESF+) resources for less developed regions will be allocated to these four regions in 2021-2027. The Just Transition Fund will address the socio-economic effects of the green transition in three counties, by supporting reskilling and upskilling, environmental sustainability in enterprises and domestic green energy production. The ESF+ allocates EUR 2.38 billion to education and training, dedicating EUR 1.9 billion to improving the quality of school education, including through measures to increase the attractiveness of the teaching profession, tackle early school leaving and support disadvantaged pupils.

Of the investments mentioned above, EUR 2.7 billion will be invested in line with REPowerEU objectives. This is on top of the EUR 1.9 billion dedicated to REPowerEU under the 2014-2020 budget**.** EUR 1.4 billion (2021-2027) and EUR 1.2 billion (2014-2020) is for improving energy efficiency; EUR 0.7 billion (2021-2027) and EUR 0.7 billion (2014-2020) is for renewable energy and low-carbon R&I; and EUR 0.7 billion (2021-2027) is for smart energy systems.

Graph A4.2: **Synergies between cohesion policy funds and the RRF with its six pillars in Hungary**



(1) million EUR in current prices (total amount, including EU and national co-financing)
Source: European Commission

In 2014-2020, cohesion policy funds made EUR 22.5 billion available to Hungary ([31]) with an absorption of 88% ([32]). Including national financing, the total investment amounts to EUR 26.5 billion - around 3% of GDP for 2014-2020.

Hungary continues to benefit from cohesion policy flexibility to support recovery, step up convergence and provide vital support to regions following the COVID-19 pandemic. The Recovery Assistance for Cohesion and the Territories of Europe instrument (REACT-EU) ([33]) under NextGenerationEU provides EUR 986 million on top of the 2014-2020 cohesion policy allocation for Hungary. It has helped safeguard

([30]) European Regional Development Fund (ERDF), Cohesion Fund (CF), European Social Fund+ (ESF+), Just Transition Fund (JTF), excluding Interreg programmes. The total amount includes national and EU contributions. Data source: Cohesion Open Data.

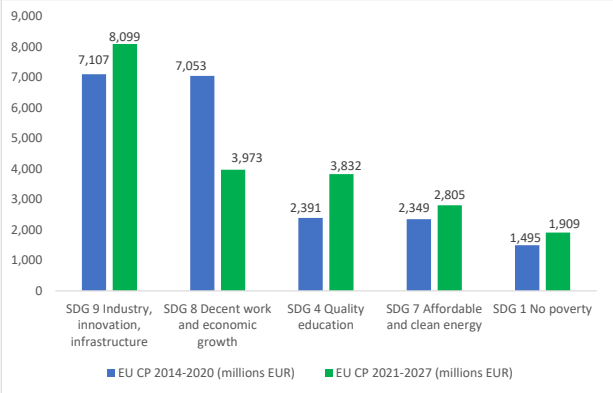
([31]) Cohesion policy funds include the ERDF, CF, ESF and the Youth Employment Initiative. According to the 'N+3 rule', the funds committed for 2014-2020 must be spent by 2023. REACT-EU is included in all figures. The total amount includes EU and national co-financing. Data source: Cohesion Open Data.

([32]) 2014-2020 Cohesion policy EU payments by MS is updated daily on Cohesion Open Data.

([33]) REACT-EU allocation on Cohesion Open Data.

more than 60 000 jobs through wage subsidies in the sectors impacted by the pandemic, boosted economic recovery through loans to over 8 000 SMEs, supported energy efficiency measures and secured the purchase of EU-approved vaccines. With SAFE (Supporting Affordable Energy), the 2014-2020 cohesion policy funds may also be mobilised by Hungary to support vulnerable households, jobs and companies particularly affected by high energy prices. In addition, Cohesion's Action for Refugees in Europe (CARE) supports Hungary and its regions in providing emergency assistance to people fleeing from Russia's invasion of Ukraine with a total budget of EUR 13.7 million.

Graph A4.3: **Cohesion policy funds contribution to the SDGs in 2014-2020 and 2021-2027 in Hungary**



(1) 5 largest contributions to SDGs in million (EUR) current prices

Source: European Commission

In both 2014-2020 and 2021-2027, cohesion policy funds have contributed substantially to the Sustainable Development Goals (SDGs). These funds support 11 of the 17 SDGs, notably SDG 9 'industry, innovation and infrastructure' and SDG 8 'decent work and economic growth' ([34]).

Other EU funds make significant resources available for Hungary. The common agricultural policy (CAP) made EUR 16.2 billion available in 2014-2022, and will continue to support Hungary with EUR 8.4 billion in 2023-2027. The two CAP Funds (European Agricultural Guarantee Fund and European Agricultural Fund for Rural Development), contribute to the European Green Deal while ensuring long-term food security. They promote social, environmental and economic sustainability and innovation in agriculture and rural areas, in coordination with other EU funds. The European Maritime, Fisheries and Aquaculture Fund makes EUR 37.7 million available in 2021-2027.

Hungary also benefits from other EU programmes, notably the Connecting Europe Facility, which under CEF 2 (2021-2027) has so far allocated EU funding of EUR 39.25 million to 11 specific projects on strategic transport networks. Similarly, Horizon Europe has so far allocated nearly EUR 57 million to Hungarian R&I actors, while in the previous programming period, Horizon 2020 earmarked EUR 371 million. The Public Sector Loan Facility established under the Just Transition Mechanism makes EUR 19.8 million of grant support from the Commission available in 2021-2027, which will be combined with loans from the EIB to support investments by public sector entities in just transition regions.

Hungary received support under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) to finance similar measures to short-time work schemes and, as an ancillary health-related measure to mitigate the impact of COVID-19. The Council granted financial assistance to Hungary of EUR 651 million in loans, which supported around 8% of workers and 3% of firms in 2020, and around 5% of workers and 2% of firms in 2021.

The Technical Support Instrument (TSI) supports Hungary in designing and implementing growth-enhancing reforms. Hungary has received significant support since 2018. Examples include: fully implementing the just transition and improving the quality of adult learning by piloting individual learning accounts ([35]).

([34]) Other EU funds contribute to the implementation of the SDGs. In 2014-2022, this includes both the European Agricultural Fund for Rural Development (EARDF) and the European Maritime and Fisheries Fund (EMFF).

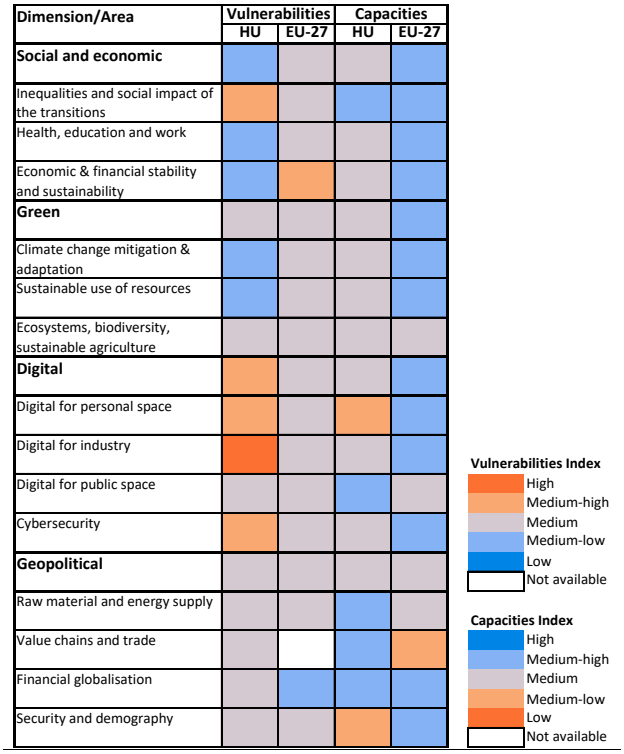
([35]) Country factsheets on reform support are available here.

This Annex illustrates Hungary's relative resilience capacities and vulnerabilities using the Commission's resilience dashboards (RDB) ([36]). Comprising a set of 124 quantitative indicators, the RDB provide broad indications of Member States' ability to make progress across four interrelated dimensions: social and economic, green, digital, and geopolitical. The indicators show vulnerabilities ([37]) and capacities ([38]) that can become increasingly relevant, both to navigate ongoing transitions and to cope with potential future shocks. To this end, the RDB help to identify areas that need further efforts to build stronger and more resilient economies and societies. They are summarised in Table A5.1 as synthetic resilience indices, which illustrate the overall relative situation for each of the four dimensions and their underlying areas for Hungary and the EU-27 ([39]).

According to the set of resilience indicators under the RDB, Hungary generally displays a similar level of vulnerabilities compared to the EU average. Hungary shows medium-low vulnerabilities in the social and economic dimension of the RDB, medium vulnerabilities in the green and geopolitical dimensions, and medium-high vulnerabilities in the digital dimension. It has higher vulnerabilities than the EU average in the areas 'inequalities and social impact of the transitions', the digitalisation of personal space and industry, 'cybersecurity' and 'financial globalisation'. Hungary has relatively low vulnerabilities in 'climate change mitigation and adaptation', 'sustainable use of resources' (mainly due to below-average GHG emissions, carbon footprint and waste generation), as well as 'economic and financial stability and sustainability', among others.

Compared to the EU average, Hungary shows an overall lower level of capacities across all RDB indicators. It has medium resilience capacities in all four resilience dimensions. Hungary shows stronger capacities than the EU average in the areas 'digital for public space', 'raw material and energy supply' and 'value chains and trade'. There is room for improving capacities compared to the EU regarding the digitalisation of the personal space and 'security and demography', among others.

Table A5.1: **Resilience indices summarising the situation across RDB dimensions and areas**



Data are for 2021, and EU-27 refers to the value for the EU as a whole. Data underlying EU-27 vulnerabilities in the area 'value chains and trade' are not available as they comprise partner concentration measures that are not comparable with Member States' level values.

Source: JRC Resilience Dashboards - European Commission

([36]) For details see https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en; see also 2020 Strategic Foresight Report (COM(2020) 493).

([37]) 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.

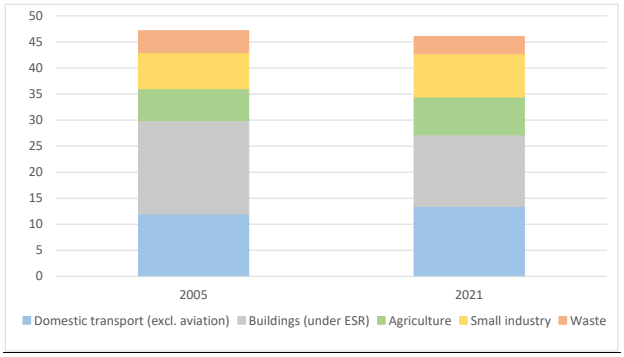
([38]) Capacities refer to enablers or abilities to cope with crises and structural changes and to manage the transitions.

([39]) 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.

Hungary's green transition requires actions on several aspects including energy efficiency, air quality, and water management. Implementation of the European Green Deal is underway in Hungary; this Annex provides a snapshot of the key areas involved ([40]).

Hungary is projected to reach its new 2030 climate target for the effort sharing sectors, if it implements the additional measures planned ([41]). Data for 2021 on Hungary's greenhouse gas emissions in the effort sharing sectors are expected to show the country generated less than its annual emission allocations ([42]). Current policies in Hungary are projected to reduce these emissions by 7% relative to 2005 levels in 2030, sufficient to reach the effort sharing target before it was adjusted in line with the EU's 55% objective. The additional measures tabled would bring the emission reductions to 22%, exceeding the new target to reduce by 18.7% ([43]). In its recovery and resilience plan (RRP), Hungary has allocated 48.1 % of its Recovery and Resilience Facility grants to key reforms and investments to attain climate objectives ([44]). Hungary's climate law of 2020 sets the 2030 objective to reduce all domestic greenhouse gas emissions by 40% relative to 1990 levels ([45]) and the objective to achieve climate neutrality by 2050. This will require faster action on decarbonisation after 2030.

Graph A6.1: **Thematic – greenhouse gas emissions from the effort sharing sectors in Mt CO2eq, 2005-2021**



Source: European Environmental Agency.

Hungary has potential to boost the capacity of its land use sector to achieve net carbon removals. Hungary's forests achieve a major share of net carbon removals through land use. Besides, annually cultivated (arable) land is a major source of greenhouse gas emissions. For 2030, Hungary's target for the land use, land use change and forestry sector (LULUCF) implies to remove 5 724 ktCO2e (see Table A6.1) ([46]).

Hungary's energy mix is still heavily reliant on fossil fuels, which in 2021 provided 72% of total energy consumption. In 2021, natural gas made up the bulk of the energy mix, accounting for 36% of the total, one percentage point more than in 2020 (see Graph A6.2). In 2021, 44% of Hungary's electricity supply was provided by nuclear energy, while natural gas and renewables

([40]) The overview in this Annex is complemented by the information provided in Annex 7 on energy security and affordability, Annex 8 on the fair transition to climate neutrality and environmental sustainability, Annex 9 on resource productivity, efficiency and circularity, Annex 11 on innovation, and Annex 19 on taxation.

([41]) Member States' greenhouse gas emission targets for 2030 ('effort sharing targets') were increased by Regulation (EU) 2023/857 (the Effort Sharing Regulation) amending Regulation (EU) 2018/842, aligning the action in the concerned sectors with the objective to reach EU-level, economy-wide greenhouse gas emission reductions of at least 55% relative to 1990 levels. The Regulation sets national targets for sectors outside the current EU Emissions Trading System, notably: buildings (heating and cooling), road transport, agriculture, waste, and small industry. Emissions covered by the EU ETS and the Effort Sharing Regulation are complemented by net removals in the land use sector, regulated by Regulation (EU) 2018/841 (the Land Use, Land Use Change and Forestry (LULUCF) Regulation) amended by Regulation (EU) 2023/839.

([42]) Hungary's annual emission allocations for 2021 were some 49.7 Mt CO_2eq, and its approximated 2021 emissions were 46.8 Mt (see European Commission, *Accelerating the transition to climate neutrality for Europe's security and prosperity: EU Climate Action Progress Report 2022*, SWD(2022)343).

([43]) See the information on the distance to the 2030 climate policy target in Table A6.1. Existing and additional measures as of 15 March 2021.

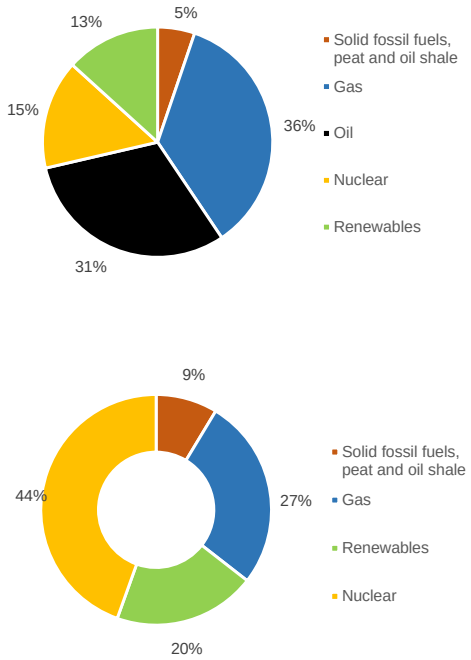
([44]) For example, investments in residential solar power systems and in the strengthening of the electricity grid, combined with comprehensive reforms, support for the building renovations of buildings, and measures to make transport more sustainable, such as investments in railways, rolling out the deployment of electric buses and a reform of the tariff system.

([45]) This target has been included in Hungary's national energy and climate plan (NECP). An update of the plan, mandated by Regulation (EU) 2018/1999 (the Governance Regulation), is underway.

([46]) This value is indicative and will be updated in 2025 (as mandated by Regulation (EU) 2023/839.

provided 27% and 20% of electricity respectively. To prepare for the widespread electrification of the economy and the consequent projected increase in demand for electricity, the country intends to scale up significantly the roll-out of solar power capacity. Gas is still expected to provide key balancing capacity to integrate renewable energy in the grid over the medium term. Nuclear generation capacity is also expected to increase by 2030, when the new Paks operation unit is set to enter into operation.

Graph A6.2: **Thematic - Energy mix (top) and electricity mix (bottom), 2021**



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

Hungary´s recovery and resilience plan supports the deployment of renewable energy including by a broad overhaul of Hungary´s electricity regulatory framework. The recovery and resilience plan will improve the regulatory environment for renewable energy production and provide financial support for the installation of residential solar panel systems. It includes investments in the electricity network and storage facilities to enable the flexible and secure integration of renewable energy sources in the electricity grid. The plan also includes reforms to improve the legal framework of the electricity market for electricity prosumers. Hungary´s target of 21% share of energy from renewable sources in gross final energy consumption by 2030 included in the NECP was considered unambitious in the 2020 assessment by the Commission. Hungary will need to substantially strengthen its renewable energy target in the updated NECP to reflect the more ambitious EU climate and energy targets in the Fit for 55 Package and in the REPowerEU Plan.

Hungary plans energy efficiency actions that warrant swift implementation. Hungary's targets for primary and final energy consumption (PEC and FEC), as enshrined in its National Energy and Climate Plan, were considered of very low ambitious in the 2020 Commission Assessment. Based on the energy consumption trajectory for 2018-2021, Hungary is expected to be on track to meet its 2030 target for PEC and but it is not expected to be on track to meet its 2030 target for FEC, as these were notified in its NECP ([47]). Reducing Hungary's exposure to fossil fuels, in particular natural gas, and improving its energy security requires significant energy efficiency improvements. It strengthens energy efficiency requirements for building renovations and supports the use of residential renewable energy production and measures to modernise the heating systems of residential buildings. It also supports energy efficiency measures to refurbish higher education institutions with the aim of saving on average 30% of their primary energy consumption. In November 2022, the government started an energy efficiency programme in industry.

Despite the recent take-off of e-mobility, transport emissions are increasing, and air quality is a concern. On the number of public charging points for electric cars and the share of zero-emission passenger cars in new registrations, Hungary scores below the EU average but has a leading position in central Europe, and these numbers are steadily growing. But Hungary is one of the most traffic-congested EU countries ([48]). About 42% of its railroads are electrified.

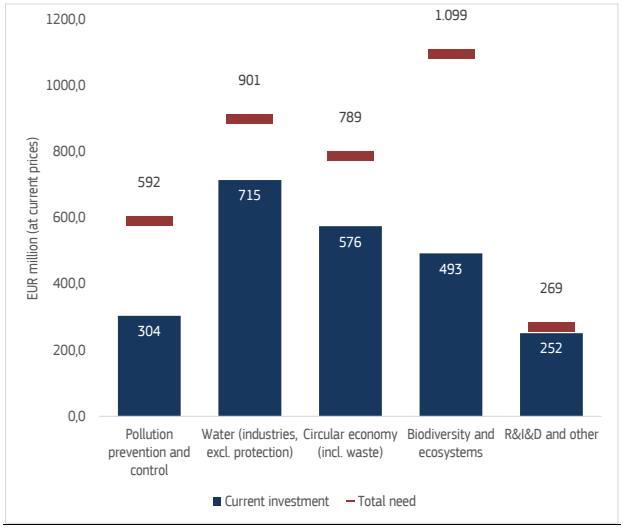
([47]) After the conclusion of the negotiations for a recast EED, the ambition of both the EU and national targets as well as of the national measures for energy efficiency to meet these targets is expected to increase

([48]) With more than 42 hours per year, the number of hours lost per driver per year in 2020 – mainly in urban areas – was above the EU average, and increasing.

Persistent breaches of air quality requirements, specifically concerning PM_{10} and NO_2, have severe impacts on public health and the environment ([49]). This can partly be linked to traffic congestion and pollution in Budapest. Exceedances of PM_{10} limits also prevail in rural areas, due to heating systems. With the energy crisis, a switch to more polluting heating sources may increase pressure on air quality; better monitoring would be helpful in this regard.

Hungary would benefit from investing more in environmental protection, protecting biodiversity, tackling pollution, and promoting the circular economy. Between 2014 and 2020, its environmental investment needs ([50]) were estimated to be at least EUR 3.6 billion while investment was at about EUR 2.3 billion, leaving a gap of at least EUR 1.3 billion per year (see Graph A6.3) ([51]). The gap is highest for biodiversity and ecosystems protection, at EUR 605.3 million per year. The EU Natura 2000 network covers 21.4% of Hungary's territory ([52]), but it has not yet allocated sufficient resources or staff to work on related tasks. The management and restoration of grasslands, wetlands and forests are major challenges.

Graph A6.3: **Thematic – environmental investment needs and current investment, p.a. 2014-2020**



Source: European Commission

Climate change has caused more frequent and intense extreme weather events, with challenges including on water management. The average temperature has risen significantly since the 1980s. Droughts have become longer and more intense. Many regions suffer from both water abundance and scarcity in the same year. The yearly distribution of precipitation has changed, with heavier rainfall but fewer rainy days. Several sectors are highly vulnerable to climate change, including some agricultural activities, forestry, ecosystem services, water management, energy, health, and tourism ([53]). Only a small proportion of Hungary's rivers and lakes are in good ecological status. Anthropogenic changes to water regimes exert pressure on water bodies. Recently, the priority given to irrigation for agriculture has raised concerns; a shift to nature-based solutions and more resource efficient and resilient practices would help climate adaptation. Hungary's recovery and resilience plan has measures on water management. Water infrastructure is not meeting EU requirements for wastewater collection, reduction of leaks and drinking water supply.

Hungary provides fossil fuel and other environmentally harmful subsidies that could be considered for reform, while ensuring food and energy security and mitigating social effects. Fossil fuel subsidies in Hungary amounted to EUR 540 million in 2020, putting low

([49]) Economic activities have a strong impact on air quality. The share of industry in Hungary's GDP is above the EU average (22.5% of GDP against 18.7% in 2021 (source: Share of industry in GDP - Data Portal - United Nations Economic Commission for Europe). In 2018, the CJEU delivered a judgment confirming the non-compliance of several air quality zones in Hungary with the PM10 limit values required by the EU legislation. In 2020, the years of life lost caused to air pollution by PM2.5 was almost twice as high in Hungary than in the on average (1056.1 years per 100.000 inhabitants, against 581.6 years).

([50]) Environmental objectives include pollution prevention and control, water management and industries, circular economy and waste, biodiversity and ecosystems (European Commission, 2022, Environmental Implementation Review, country report Hungary).

([51]) When also accounting for needs estimated at EU level only (e.g., water protection, higher circularity, biodiversity strategy).

([52]) In 2021, Hungary had 22.2% terrestrial protected areas (Natura 2000 and nationally designated areas), against the EU average of 26.4% (European Environment Agency, 2023, Natura 2000 Barometer).

([53]) Source: European Environmental Agency, Climate-Adapt, country profile Hungary.

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

									'Fit for 55' 2030 target/value	Distance WEM	Distance WAM
			2005	2017	2018	2019	2020	2021			
Progress to policy targets	Greenhouse gas emission reductions in effort sharing sectors [1]	Mt CO2eq; %; pp	48,0	-10%	-10%	-7%	-9%	-	-18,7%	-11,7	3,3
	Net carbon removals from LULUCF [2]	kt CO2eq	-5.998	-5.365	-4.812	-5.388	-7.110	-7.197	-5724	n/a	n/a
			2005	2017	2018	2019	2020	2021	National contribution to 2030 EU target		
	Share of energy from renewable sources in gross final consumption of energy [3]	%	7%	14%	13%	13%	14%	14%	21%		
	Energy efficiency: primary energy consumption [3]	Mtoe	26,3	24,5	24,5	24,6	23,9	24,9	no target set		
	Energy efficiency: final energy consumption [3]	Mtoe	18,7	18,5	18,5	18,6	18,0	19,1	18,7		
			Hungary						EU		
			2016	2017	2018	2019	2020	2021	2019	2020	2021
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	2,5	2,4	2,3	2,3	2,2	2,0	2,4	2,2	2,2
	Environmental taxes (% of total taxation)[4]	% of taxation	6,5	6,4	6,2	6,2	6,0	5,9	5,9	5,6	5,5
	Government expenditure on environmental protection	% of total exp.	1,1	1,4	1,4	1,6	1,5	1,5	1,7	1,6	1,6
	Investment in environmental protection [5]	% of GDP	0,4	0,4	0,5	0,7	-	-	0,4	0,4	0,4
	Fossil fuel subsidies [6]	EUR2021bn	0,5	0,6	0,7	0,5	0,5	-	53,0	50,0	-
	Climate protection gap [7]	score 1-4					1,3	1,2			1,5
Climate	Net greenhouse gas emissions	1990 = 100	66,0	69,0	69,0	69,0	67,0	67,0	76,0	69,0	72,0
	Greenhouse gas emission intensity of the economy	kg/EUR'10	0,60	0,60	0,57	0,53	0,55	-	0,31	0,30	0,26
	Energy intensity of the economy	kgoe/EUR'10	0,23	0,23	0,22	0,21	0,21	-	0,11	0,11	-
Energy	Final energy consumption (FEC)	2015=100	102,0	106,3	106,5	106,9	103,5	110,1	102,9	94,6	-
	FEC in residential building sector	2015=100	103,1	105,4	97,5	95,1	100,2	107,6	101,3	101,3	106,8
	FEC in services building sector	2015=100	99,1	97,8	95,2	93,0	90,8	94,2	100,1	94,4	100,7
Pollution	Smog-precursor emission intensity (to GDP) [8]	tonne/EUR'10	1,6	1,6	1,5	1,3	1,3	-	0,9	0,9	-
	Years of life lost due to air pollution by PM2.5	per 100.000 inh.	1349,1	1456,9	1419,6	1011,2	1056,1	-	581,6	544,5	-
	Years of life lost due to air pollution by NO_2	per 100.000 inh.	192,5	224,0	206,7	194,2	154,7	-	309,6	218,8	-
	Nitrates in ground water	mg NO3/litre	-	-	-	-	-	-	21,0	20,8	-
Biodiversity	Land protected areas	% of total	22,0	22,2	-	22,2	22,2	22,2	26,2	26,4	26,4
	Marine protected areas	% of total	-	-	-	-	-	-	10,7	-	12,1
	Organic farming	% of total utilised agricultural area	3,5	3,7	3,9	5,7	6,0	5,8	8,5	9,1	-
			2017	2018	2019	2020	2021	2022	2020	2021	2022
Mobility	Share of zero-emission vehicles [9]	% in new registrations	0,6	0,9	1,2	2,2	3,5	4,3	5,4	8,9	10,7
	Number of AC/DC recharging points (AFIR categorisation)		-	-	-	1301	2885	3579	188626	330028	432518
	Share of electrified railways	%	40,5	40,5	41,9	n/a	n/a	42,4	56,6	n/a	56,6
	Hours of congestion per commuting driver per year		27,6	27,3	30,2	29,8	n/a	n/a	28,7	n/a	n/a

Source:

carbon alternatives at a disadvantage. Environmentally harmful subsidies have been identified, via an initial assessment, in the agriculture, forestry and fishing, electricity, gas, steam and air conditioning, transportation and storage and other services sectors. Examples of such subsidies include the excise tax refund for diesel fuel used in agriculture, the reduced energy tax rate for light fuel oil used in mobile machinery, the excise tax exemption on the use of natural gas or the reimbursement of excise duty on diesel used in freight and other categories of passenger transport ([54]). A mapping of all environmentally harmful subsidies by Hungary would help prioritise candidates for reform.

Hungary has the potential to increase environmental taxation. In 2020, revenue from environment-related taxes equalled the EU average, at 2.2% of GDP. Hungary's tax revenues raised on energy and transport are below the EU average, and environmental taxes on resources and pollution are above the EU average (see Annex 19). There is room to increase environmental taxes to further internalise the cost of air pollution and to limit water pollution ([55]), for example on solid fuels like biomass in the residential sector, or on waste such as beverage containers.

([54]) Fossil fuel figures in EUR of 2021 from the 2022 State of the Energy Union report. Initial assessment of environmentally harmful subsidies done by the Commission in the 2022 toolbox for reforming environmentally harmful subsidies in Europe, using OECD definitions, and based on the following datasets: OECD Agriculture Policy Monitoring and Evaluations; OECD Policy Instruments for the Environment (PINE) Database; OECD Statistical Database for Fossil Fuels Support; IMF country-level energy subsidy estimates. Annex 4 of the toolbox contains detailed examples of subsidies on the candidates for reform.

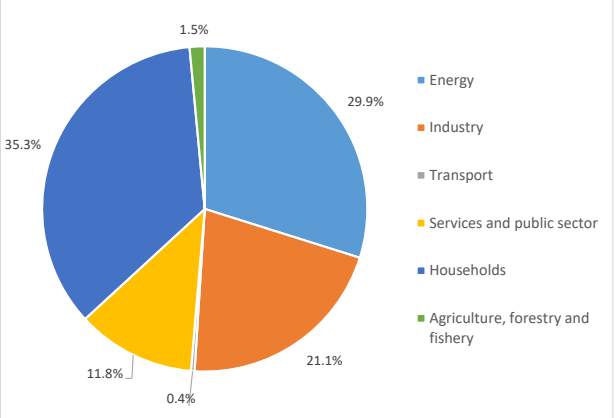
([55]) European Commission, 2021, Green taxation and other economic instruments – Internalising environmental costs to make the polluter pay, Ensuring that polluters pay.

Hungary continues to depend heavily on Russian fossil fuels, and efforts to reduce this dependency are progressing too slowly. This Annex ([56]) sets out actions carried out by Hungary to achieve the REPowerEU objectives, including through the implementation of its recovery and resilience plan, in order to improve energy security and affordability while accelerating the clean energy transition, and contributing to enhancing the EU's competitiveness in the clean energy sector ([57]).

Hungary continues to depend on Russia for most of its gas imports raising uncertainties in terms of security of supply. Gas constitutes more than one third of its energy mix (Annex 6) and will likely continue to constitute a significant part of it until 2030, when the Matra lignite-fired power plant is expected to be replaced by a 500 MW gas-fired plant. Most of the gas is consumed by households (35.3% is 2021), in the energy sector (29.9%) and by industry (21.1%), where the chemical and petrochemical sector is by far the largest consumer with a share close to 40%. In September 2021, Hungary signed a long-term gas supply agreement with Gazprom. The 15-year agreement includes 3.5 billion cubic metres (bcm)/year through the TurkStream pipeline and a further 1 bcm/year through a pipeline from Austria. On 15 August 2022, Hungary signed a temporary modification of the existing gas contract with Gazprom, with a view to increase flows to Hungary through the TurkStream pipeline that transports gas via Bulgaria and Serbia by additional 5.8 million cubic metres/day of natural gas to replace missing quantities from the Austrian route.

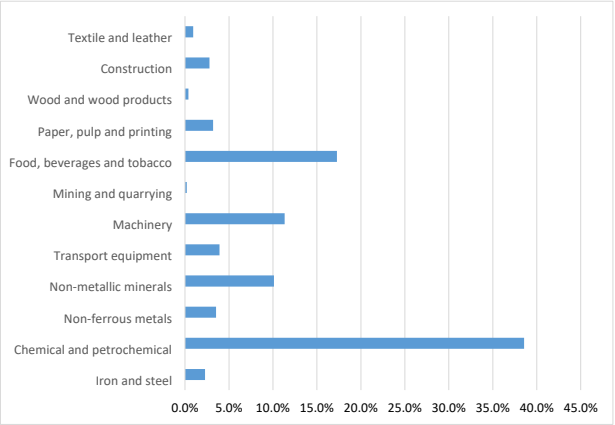
Hungary continues to rely heavily on oil imports from Russia through the Druzhba pipeline, although it has become much less dependent in the last decade. Russian crude oil constitutes around 58% of the country's oil imports. Most of the rest of Hungary's imports come from Iraq and Kazakhstan. Domestic oil production accounts for around 13% of its total crude consumption. Expanding the capacity of the Janaf/Adria pipeline in Croatian territory would make it possible for Hungary to compensate for the phasing out of the Druzhba route.

Graph A7.1: **Share of gas consumption per sector, 2021**



Source: Eurostat

Graph A7.2: **Gas consumption per industrial sector 2021 (% of total industry gas consumption)**



Source: Eurostat

Well-developed transmission and distribution infrastructures and ongoing interconnection gas projects are improving security of supply in Hungary and in the region in general. Hungary has a large storage capacity of around 6.3 bcm ([58]), equal to almost 56% of its gas consumption in 2021 (11.3 bcm). Hungary fulfilled its gas storage obligations last winter, reaching

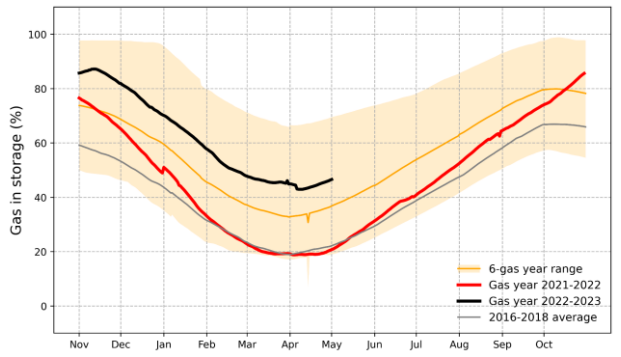
([56]) It is complemented by Annex 6 as the European Green Deal focuses on the clean energy transition, by Annex 8 on the actions taken to mitigate energy poverty and to protect the most vulnerable ones, by Annex 9 as the transition to a circular economy will unlock significant energy and resource savings, further strengthening energy security and affordability, and by Annex 12 on industry and single market complementing ongoing efforts under the European Green Deal and REPowerEU..

([57]) in line with the Green Deal Industrial Plan COM(2023) 62 final, and the proposed Net-Zero Industry Act COM(2023) 161 final

([58]) Hungary operates five underground storage facilities managed by two operators: HEXUM (UGS Szöreg-1) and HGS (Pusztaederics, Zsana-Nord, Kardoskút-Pusztaszolos, Hajdúszoboszló).

86.01% by 1 November, and ended the heating season with the gas storage capacity filled at 43.45% by 15 April 2023 ([59]). Hungary has gas interconnectors with Romania, Austria (unidirectional flow from Austria to Hungary), Croatia, Slovakia, Serbia and Ukraine. With the expansion of the Slovakia-Hungary interconnector and the Krk liquefied natural gas (LNG) terminal, and of the evacuation pipelines in Croatia, Hungary could increase its access to LNG in Poland and Croatia respectively, with limited need for additional internal network reinforcements. In June 2020, MVM (the state-owned gas and electricity company) signed a seven-year deal for the import of 1 bcm/year from the Krk LNG facility. It is also reported to have imported some volumes from Krk in 2021. The completion of the BRUA phase II project, on the 5th Project of Common Interest list, would also enable Hungary to considerably improve its import capabilities from Romania.

Graph A7.3: **Underground gas storage levels in Hungary**



Source: JRC calculation based on AGSI+ Transparency Platform, 2022 (Last update 2 May 2023)

Preparing the electricity networks to integrate electricity produced by decentralised and variable generation capacities is the most pressing need for the future, requiring significant investments in Hungary's grid, balancing and storage capacities. The government plans to increase energy storage capacity to at least 1 000 MW by 2026 and to add 100 MW capacity of demand-side response by 2030.

([59]) Regulation of the European Parliament and of the Council amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage and Implementing Regulation (EU) 2022/2301 of 23 November 2022 setting the filling trajectory with intermediary targets for 2023 for each Member State with underground gas storage facilities on its territory and directly interconnected to its market area.

The nuclear energy sector, which accounted for around 45% of Hungary's electricity consumption in 2021, still depends on Russian technology and nuclear fuel. The two new nuclear power plants units (Paks II) have also a Russian vendor (Russian design VVER-1 200). They will be built in Paks, each with a capacity of 1 200 MW. Construction is planned to be finalised by 2030 but might be subject to delays. The decommissioning of the current Paks operating units, originally planned for the second half of the 2030s, will be further postponed to bridge delays in the realisation of the new Paks units.

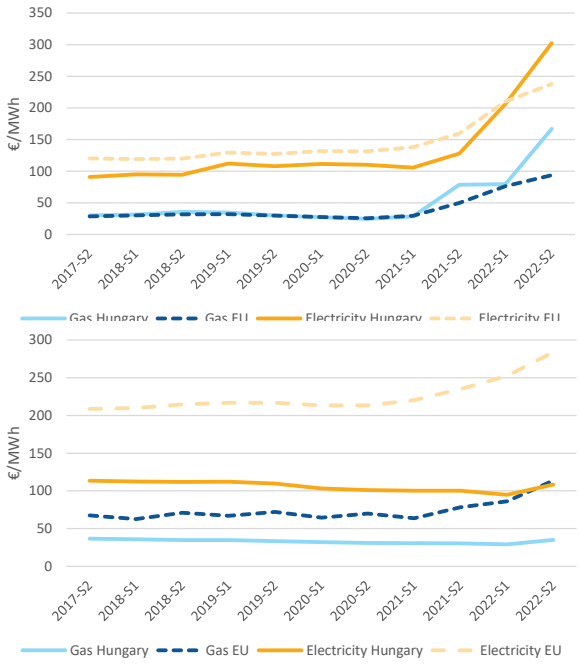
Hungary has implemented some measures to decrease gas consumption, especially in the public sector. Over the period August 2022-March 2023, 20% of gas consumption has been saved in Hungary compared to the previous 5-years average. In July 2022, the government declared a state of emergency and announced an action plan to deal with it. The plan includes increasing domestic gas production to 2 bcm from the current 1.5 bcm, increasing gas import volumes above the quantities set out in long-term contracts to fill storage, banning the export of energy carriers and firewood, boosting lignite production and the lifetime extension of the Paks-I nuclear plant. In September 2022, Hungary imposed a 25% reduction in gas consumption on state agencies and state-owned companies and set an 18C heating cap for public buildings. High gas prices have also made more attractive the government's subsidy scheme supporting the installation of rooftop solar panels, energy-efficient heating systems as well as home renovations.

Hungary is a net electricity importer, with the net import level stable since the second half of the 2010s, at around one third of total consumption. The progressive replacement of fossil fuels with electricity in all sectors of the economy, coupled with the government's strategy to attract energy-intensive industries, is likely to increase energy demand. As a result, Hungary's security of electricity supply will increasingly depend on successfully speeding up the roll-out of renewable electricity capacity. This will require strengthening the transmission and distribution grids, particularly by increasing the flexibility of the electricity network and its capacity to accommodate an increasing share of renewable sources. Government decree No. 413/2022 of 26 October 2022 suspended the possibility for small

power generation installations, for which the application was submitted after 31 October 2022, of feeding electricity into the public grid. The government attributed its decision to the lack of spare grid connection capacities. Moreover, government decree 484/2022 prevents the energy regulator from setting network tariffs which ensure cost recovery. Its abolition is therefore necessary to ensure the sustainable and secure operation of the electricity network as well as the integration of more renewable capacity. Moreover, encouraging more cross border exchanges of balancing energy, including via a deeper integration in the EU balancing market, opening the balancing market to newcomers, and encouraging demand-side participation would also help keep the cost of balancing in check and make it easier to integrate more intermittent capacity. The commissioning and entry into operation of the Hungary-Slovenia electricity interconnector in December 2022 electrically connected Hungary to all its neighbours, further strengthening the security of its electricity supply.

Retail gas and electricity prices for households have been frozen since 2013, giving them few incentives to be energy-efficient and save energy. Gas and electricity bills are significantly lower than the EU average and government support reached up to 10 times the regulated price of gas in 2022. Starting on August 1st 2022, the government has adjusted the mechanism, limiting the price cap to the level of average consumption. Shifting the focus of energy subsidies towards targeted support for energy poverty and structural energy efficiency measures would increase the incentive for energy efficiency improvements and energy savings.

Graph A7.4: **Hungary´s retail energy prices for industry (top) and households (bottom)**



(1) On electricity, the band consumption is DC for households and ID for industry
(2) On gas, the band consumption is D2 for households and I4 for industry
Source: Eurostat

The outlook for renewable energy is mixed. In the last decade, the share of renewables has been generally stable, at around 12%, with the bulk made up of biomass (around 68% in 2021). Solar power deployment has been a central part of the government's strategy to boost renewables in the power sector. Solar PV capacity has quadrupled since 2018, reaching 3 GW in 2022, although growth has come to a halt in 2022, when Solar PV deployments have virtually stopped ([60]). The government objective to reach 6 GW of installed capacity by 2030 seems attainable. By contrast, the development of wind energy has been slow in the last decade, stalling at around 323 MW, with no new capacities added, mainly due to an increasingly unfavourable regulatory environment. A 2016 government decree ([61]) states that wind turbines cannot be installed in a radius of less than 12 km from populated areas. In its recovery and resilience plan, Hungary has committed to amend the currently applicable legislative framework to remove unnecessary restrictions on

([60]) IRENA, Renewable capacity statistics 2023

([61]) Section 1 of the amendment to legislation relating to the establishment of renewable power plants, Government Decree 253/1997 of 20 December 1997 on national community planning and construction requirements.

the installation of wind power plants in the country.

The potential to reduce energy consumption, most of which is in the building sector, remains largely untapped. Hungary was able to reach its 2020 energy efficiency target only due to the economic fallout of the COVID-19 Pandemic. However, in the last decade, its final energy consumption has constantly been on an increasing trend. Ambitious measures to increase energy efficiency, focused on the building sector, will be crucial for Hungary to reach its 2030 targets and to preserve its economy's competitiveness. Buildings account for about one third of final energy consumption and 40% of primary energy use. They also account for about 50% of Hungary's natural gas consumption. Most of this energy consumption is in the residential sector. Reducing residential energy consumption by renovating buildings will also help to decrease Hungary's dependency on natural gas, as households were responsible for almost 36% of total gas consumption in 2021. Reducing energy consumption and related greenhouse gas emissions in buildings is a key part of the structural changes being wrought for long-term decarbonisation and to help citizens and businesses cope with the high energy prices caused by the current crisis. In its national energy and climate plan, Hungary committed itself to introducing a new energy efficiency obligation scheme, providing support for energy service companies, renovating residential and public buildings, further improving district heating systems and supporting greater deployment of renewable energy for heating and cooling. By 2030, Hungary's long-term renovation strategy (LTRS) aims to reach 20% CO_2 emissions reduction in the energy use of domestic housing stock, to increase the renovation rate to 3%/year, and to reduce CO_2 emissions by 18% and increase the renovation rate to 5%/year for public buildings. The scarcity of a specialised workforce makes it difficult to improve buildings' energy efficiency. The LTRS also envisages the training and reskilling of about 20 000 professionals in order to improve their skills in energy renovation and renewable energy and to be able to meet the estimated increase in demand. Hungary is carrying out a very low number of checks on products covered by eco-design and energy labelling. This generates serious concerns with respect to the level playing field among economic operators and uncertainty as to the compliance levels of the concerned products, and therefore possible missed energy and CO2 savings ([62]).

Hungary's research and development (R&D) spending on Energy Union priorities is low and below the EU average. Public spending has been stagnating since 2014, while private spending halved between 2010 and 2019. GDP devoted to public research and innovation (R&I) spending on Energy Union priorities is low, with only a slight increase observed between 2014 and 2020. Private R&I spending has declined by 0.013% since 2019. Venture capital investments in climate tech firms in 2021 amounted to EUR 0.1 million, one third of the total recorded in 2020. Hungary has yet to fully harness its potential to develop geothermal energy. As geothermal-rich Pannonian Basin has Soviet-era district heating grids are in place, geothermal energy is a potentially low-cost, clean alternative to fossil fuels for heating. Hungary's national climate development strategy expects technologies, such as carbon capture, utilisation and storage (CCUS) and hydrogen, to become available between 2030 and 2040. Up to 2030, Hungary plans to produce 16 000 tonnes of hydrogen a year, storing surplus energy from solar PV, for example through the Aquamarine pilot project. Hungary enjoys a leading position in e-mobility and batteries, with major R&D capacities and top Asian producers planning to establish production centres in the country. Hungary has a sizable automotive production industry, including the manufacturing of e-mobility and battery production.

([62]) The internet-supported information and communication system for the pan-European market surveillance

Table A7.1:**Key energy indicators**

		HUNGARY				EU			
		2018	2019	2020	2021	2018	2019	2020	2021
ENERGY DEPENDENCE	**Import Dependency [%]**	58%	70%	57%	54%	58%	61%	57%	56%
	of Solid fossil fuels	48%	46%	44%	39%	44%	44%	36%	37%
	of Oil and petroleum products	86%	87%	87%	87%	95%	97%	97%	92%
	of Natural Gas	78%	115%	76%	67%	83%	90%	84%	83%
	Dependency from Russian Fossil Fuels [%]								
	of Hard Coal	16%	10%	22%	18%	40%	44%	49%	47%
	of Crude Oil	68%	75%	61%	58%	30%	27%	26%	25%
	of Natural Gas	95%	95%	95%	95%	40%	40%	38%	41%

		2015	2016	2017	2018	2019	2020	2021	2022
ELECTRICITY	**Gross Electricity Production (GWh)**	30,360	31,902	32,915	32,067	34,291	34,930	36,120	-
	Combustible Fuels	13,395	14,583	15,407	14,725	15,429	15,358	15,301	-
	Nuclear	15,834	16,054	16,098	15,733	16,288	16,055	15,990	-
	Hydro	234	259	220	222	219	244	212	-
	Wind	693	684	758	607	729	655	664	-
	Solar	141	244	349	629	1,497	2,459	3,796	-
	Geothermal	0	0	1	12	18	16	12	-
	Other Sources	63	78	82	139	111	143	145	-
	Net Imports of Electricity (GWh)	13,686	12,711	12,878	14,348	12,584	11,677	12,754	-
	As a % of electricity available for final consumption	36%	33%	32%	35%	30%	28%	29%	-
	Electricity Interconnection (%)	-	-	58.30%	58.75%	53.1%	35.3%	32.5%	41.4%

		2015	2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	**Gas Consumption (in bcm)**	9.1	9.7	10.4	10.1	10.2	10.6	11.2	9.5
	Gas Imports - by type (in bcm)	6.8	7.6	9.8	7.7	11.7	7.9	7.5	-
	Gas imports - pipeline	6.8	7.6	9.8	7.7	11.7	7.9	7.5	-
	Gas imports - LNG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
	Gas Imports - by main source supplier (in bcm) (1)								-
	Russia	6.5	7.2	9.4	7.4	11.1	7.5	7.1	-
	Not specified	0.3	0.4	0.5	0.4	0.6	0.4	0.4	-

		2019	2020	2021	2022
	LNG Terminals				
	Number of LNG Terminals (2)				
	LNG Storage capacity (m3 LNG)				
	Underground Storage				
	Number of storage facilities	5	5	5	5
	Operational Storage Capacity (bcm)	7.1	7.1	6.9	6.9

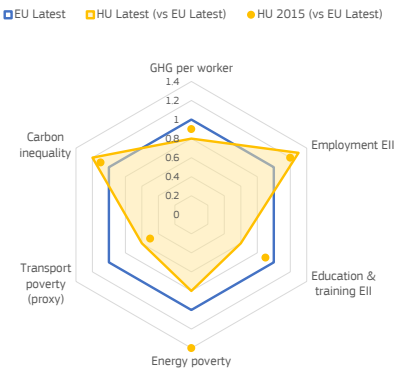
		2019	2020	2021	2022
CLEAN ENERGY	**VC investments in climate tech start-ups and scale-ups (EUR Mln) (3)**	0.0	0.3	0.1	n.a.
	as a % of total VC investments in Hungary	0.0%	0.3%	0.0%	n.a.
	Research & Innovation spending in Energy Union R&i priorites (2)				
	Public R&I (EUR mln)	7.0	17.2	64.4	n.a.
	Public R&I (% GDP)	0.005%	0.012%	0.042%	n.a.
	Private R&I (EUR mln)	20.3	n.a.	n.a.	n.a.
	Private R&I (% GDP)	0.01%	n.a.	n.a.	n.a.

(1) The ranking of the main supliers is based on the latest available figures (for 2021)
(2) FSRU included
(3) Venture Capital investments include Venture Capital deals (all stages) and Private Equity Growth/Expansion deals (for companies that have previously been part of the portfolio of a VC investment firm).

Source: Eurostat, Gas Infrastructure Europe (Storage and LNG Transparency Platform), JRC SETIS (2022), JRC elaboration based on PitchBook data (06/2022)

This Annex monitors Hungary's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, notably for workers and households in vulnerable situations. While participation in education and training in energy-intensive industries has declined, Hungary needs investment in relevant up- and re-skilling, especially for workers in declining and transforming sectors, in order to ensure a fair green transition in line with the Council Recommendation ([63]). The recovery and resilience plan (RRP) outlines some investments for a fair green transition, complementing the territorial just transition plans and actions supported by the European Social Fund Plus (ESF+). The Hungarian RRP aims to provide 35 000 lower- and middle-income families with 140-175MW of residential solar panel capacity as well as to provide 5 000 poor families in the 300 most deprived municipalities with 25MW of community solar panel park capacity.

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



Source: Eurostat, EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (see Table A8.1).

The greening of the economy has not yet accelerated and employment in sectors most affected by the green transition remains stable, while workers in declining activities need active support. Employment in Hungary's energy-intensive industries (EII) represented a stable share of 3.6% of total employment in 2021 (in 2020: 3.9% vs 3.0% in the EU) (see Graph A8.1 and Table A8.1), and employment in construction, transportation and storage has been steadily increasing. Simultaneously, employment in mining and quarrying has nearly halved since 2015 and a further decrease is expected with the transformation of the lignite units of the Mátra plant to low-carbon emission technologies. This underlines the need to ensure the development of green jobs and skills for a successful and fair green transition ([64]). Hungary plans to support the adaptations required of workers and enterprises in the counties most affected by the green transition (Baranya, Heves, Borsod-Abaúj-Zemplén) by allocating EUR 48 million from the Just Transition Fund.

Upskilling and reskilling in declining and transforming sectors require further efforts. In Hungary, 30% of citizens believe they do not have the necessary skills to contribute to the green transition (EU: 38%) ([65]). In 2022, the job vacancy rate in construction was below the EU average (1.8% vs 4.0%) ([66]). In energy-intensive industries, workers' participation in training has declined from 9.7% in 2015 to 6.3% in 2022 and is below the EU average (10.4%). The overall national adult participation rate in learning is low (see Annex 14), with very low participation among vulnerable groups in particular. To address this, at least EUR 71.5 million of ESF+ funding in Hungary contributes to green skills and jobs. Measures include labour market and in-company training, wage subsidies and the modernisation of curricula in vocational education and training to develop green professional skills.

Energy poverty indicators have improved in recent years, but the spike in energy prices can be expected to aggravate the situation. The share of the total population unable to keep their homes adequately warm fell from 9.6% in 2015 to 4.2% in 2020 but then rose to 5.4% in 2021 (below 6.9% in the EU) ([67]). In particular, 16.3% of the population at risk of poverty (EU: 16.4%) and 4% of lower middle-income households (in deciles 4-5) were affected in 2021 (EU: 8.2%). Before the energy price hikes, an estimated 64.5% of the total population and 82.4% of the (expenditure-based) at-risk-of-

([63]) 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.

([64]) Data on environmental goods and services sector employment is unavailable for Hungary (see Annex 9 for circular jobs specifically).

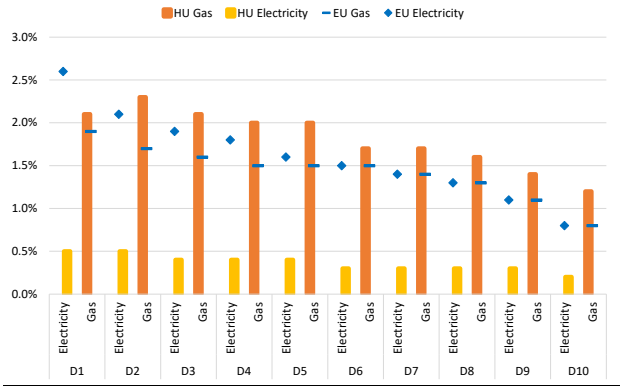
([65]) Special Eurobarometer 527. Fairness perceptions of the green transition (May – June 2022).

([66]) Eurostat (JVS_A_RATE_R2)

([67]) 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.

poverty (AROP) population had expenditure shares on electricity, gas, and other fuels ([68]) above 10% of their household budget, well above the estimated EU average of 26.9% and 48.2%, respectively.

Graph A8.2: **Distributional impacts of energy prices due to rising energy expenditure (2021-2023)**



Mean change of energy expenditure as a percentage (%) of total expenditure per income decile (D) due to observed price changes (August 2021 – January 2023 relative to the 18 months prior), excl. policy support and behavioural responses. ***Source:*** EMPL-JRC GD-AMEDI/AMEDI+ projects, based on Household Budget Survey 2015 and Eurostat inflation data for CP0451 and CP0452.

The increased energy prices in 2021-2023 negatively affected households' budgets, in particular for low-income groups. Most citizens (85%) consider rising energy prices a serious problem ([69]). As a result of energy price changes during the August 2021 to January 2023 period relative to the 18 months prior (cf. Annex 7), in the absence of policy support and behavioural responses (but accounting for price interventions), the fraction of individuals living in households spending more than 10% of their budget on energy would have increased by 9.5 percentage points (pps) for the whole population and by 5.9 pps among the (expenditure-based) AROP population, which are lower increases than the EU average (16.4 pps and 19.1 pps, respectively) ([70]). Expenditure shares of low and lower-middle income groups would have increased the most, with the increase most pronounced for gas (similar to EU-wide effects), as shown in Graph A8.2. Among the (expenditure-based) AROP population, the share of individuals living in households with budget shares for private transport fuel ([71]) above 6% would have increased by 3.4 pps, i.e. less than the EU average (5.3 pps), reaching 21.3% in January 2023 (EU: 37.1%). Transport fuel price increases in Hungary tend to be progressive, affecting the middle and higher income groups the most.

Public transport perceptions are generally favourable, but carbon inequality is above the EU average. Citizens perceive public transport to be relatively available (71% vs 55% in the EU), affordable (71% vs 54% in the EU) and of good or fairly good quality (69% vs 60% in the EU). The urban-rural divide in these perceptions appears to be small. Accordingly, for rural areas in Hungary, transport perceptions stand out as favourable in an EU-wide comparison ([72]). However, the carbon footprint of the top 10% of emitters (i.e. households in the highest income decile) was about 5.9 times that of the bottom 50% of emitters (EU 5.0 times) (see Graph A8.1). In Hungary, the average levels of air pollution in 2020 stood above the EU average (14.5 vs 11.2 µg/m PM2.5), with all regions exposed to critical levels of air pollution ([73]), leading to significant health impacts, in particular on vulnerable groups, and 9 502 premature deaths annually ([74]).

([68]) Products defined according to the European Classification of Individual Consumption according to Purpose (ECOICOP): CP045.

([69]) Special Eurobarometer 527.

([70]) EMPL-JRC GD-AMEDI/AMEDI+ ; see details in the related technical brief.

([71]) ECOICOP: CP0722.

([72]) The figures for respondents living in country villages are, respectively 68%, 71%, and 73%for HU, against 46%, 48%, 56% for the EU. Special Eurobarometer 527.

([73]) Two times higher the recommendations in the WHO Air Quality Guidelines (annual exposure of 5µg/m3)

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

Table A8.1:**Key indicators for a Fair Transition in Hungary**

Indicator	Description	HU 2015	HU Latest	EU Latest
GHG per worker	Greenhouse gas emissions per worker - CO2 equivalent tonnes	12	10.7 (2021)	13.7 (2021)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), automotive (C29) - %	3.6	3.9 (2020)	3 (2020)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries - %	9.7	6.3 (2022)	10.4 (2022)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm - %	9.6	5.4 (2021)	6.9 (2021)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport - %	17.9	21.3 (2023)	37.1 (2023)
Carbon inequality	Average emissions per capita of top 10% of emitters vs bottom 50% of emitters	5.4	5.9 (2020)	5 (2020)

Source: Eurostat (env_ac_ainah_r2, nama_10_a64_e, ilc_mdes01), custom extraction from the EU Labour Force Survey (break in times series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (WID).

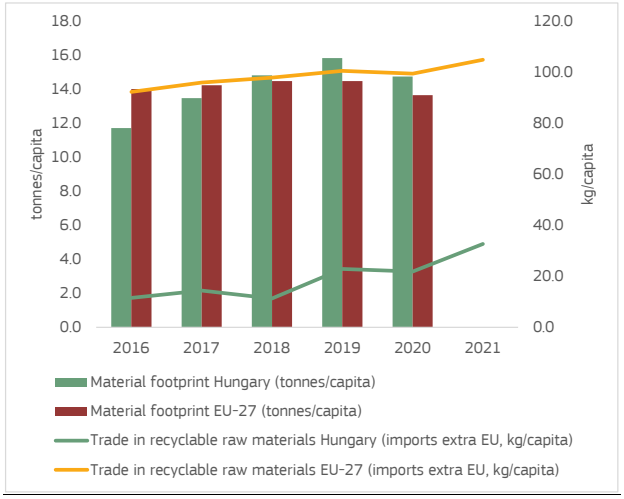
The circular economy transition is key to delivering on the EU's climate and environmental goals and provides large socio-economic benefits. It spurs job growth, innovation and competitiveness and fosters resilience and resource security. The circularity transition of industry, the built environment and agri-food can generate significant environmental improvements (see Annex 6), as they rank among the most resource-intensive systems.

Despite some progress, Hungary's circular economy transition is insufficient and needs accelerating to meet the EU's circular economy goals. The 2020 circular economy action plan (CEAP) aims at doubling the circular material use rate. In Hungary, that rate remains low at 6.8% in 2021 (below the EU average of 11.7%). The CEAP also aims to significantly decrease the EU's material footprint, which in 2020 in Hungary was slightly above the EU-27 average (14.7 vs 13.7 tonnes per head). This confirms the upward trend in Hungary and the increase of raw material extraction to support economic growth. The labour market benefits from the circular transition are weak, with a decrease in direct circular jobs since 2016 (see Annex 8). At the same time, accidents related to safety and health in waste and materials recovery are significantly above the average for other sectors in Hungary and the EU average for this sector ([75]).

Hungary recently adopted new policies to address circular economy challenges, but more efforts are needed Hungary adopted a Climate and Nature Protection Action Plan, in 2020 and amended the Act on Waste (Act CLXXXV of 2012) in 2021. The amendment aimed at eliminating illegal waste dumps, setting up a 'deposit-return system' and rationalising waste economic activity. However, the measures are still to be fully implemented and more legislation is planned for 2023, notably a new waste management model for July 2023. Hungary launched in 2022 a mobile application ('HulladékRadar') to report illegally dumped waste and encourage public participation in fighting illegal waste. As part of the structural reform support programme, Hungary is working on a circular economy strategy identifying three priority areas – food/biomass, construction, and plastics – to become a more competitive circular economy by 2040, but the strategy has yet to be published.

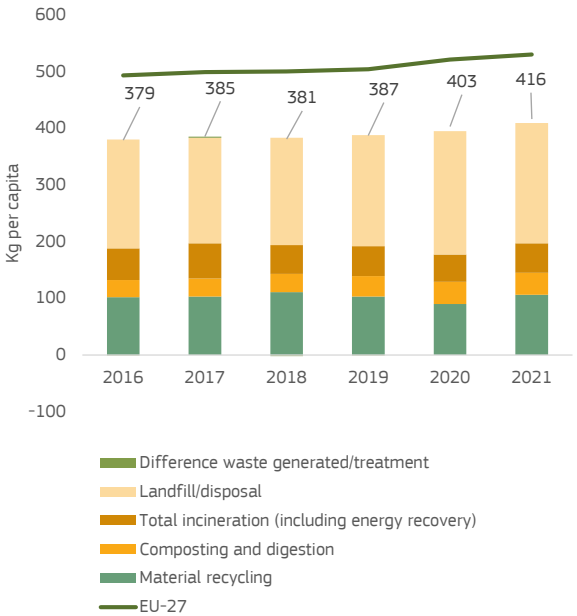
([75]) Eurostat [HSW_N2_02] for NACE Rev. 2 sector E38; 8.77 fatal accidents p. 100 000 employed in 2018-2020 vs 1.9 for all sectors in HU; 6.33 in the EU-27 for sector E38

Graph A9.1: **Trend in material use**



Source: Eurostat

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



Source: Eurostat

Hungary's performance in waste management is insufficient. Hungary missed the EU target of 50% of municipal waste recycled (with only 34.9% in 2021 vs the EU average of 49.6%). Hungary also risks missing the EU 2025 targets for municipal and packaging waste. 51% of Hungary's municipal waste was still landfilled in 2021 (double the EU average of 22.8%). Illegal

waste dumps remain an issue, diverting materials and resources that could be reused or recycled with further improvements in separate collection and treatment, notably for biowaste. In Hungary, composting and digestion are low (39 kg per person vs the EU average of 100 kg in 2021).

The industrial system's circularity is below the EU average. The resource productivity of Hungary has been stagnating since 2016, with 1.6 purchasing power standard per kilogramme vs 2.3 for the EU in 2021. The country has still significant potential to boost repair, reuse, and the use of secondary raw materials. As part of the Recovery and Resilience Plan, Hungary intends to tackle this lack of circularity and commits to more ambitious rules on extended producer responsibility by 2023.

The built environment system provides an opportunity to increase resource efficiency. The construction and demolition waste's recovery rate is above the EU average (98% vs 89% in 2020). Soil sealing progressed between 2015 and 2018 at the same rate as the EU-27 average. There is scope for renovating and improving uses of existing buildings instead of building new ones.

The agri-food system has yet to design out food waste and efficiently manage water resources. Further development of treatment capacity for biowaste, support of home composting, and development of national standards for compost could enhance Hungary's autonomy. Not all water abstractions are registered, and water bodies are under significant pressure from human-induced changes in water regimes. Both flood and drought risks are high, and Hungary's irrigation strategy needs to make further efforts to increase natural water retention and promote more resource-efficient and resilient production practices for the sustainable management of the water resource and the capacity to adapt to climate change (see Annex 6). Maintaining traditional agricultural model based on irrigation and water abstraction would increase pressure on the environment and water resources.

A financing gap remains in the circular economy, including in waste management. Additional investments will be required to address growing needs. Between 2014 and 2020, the financing gap was estimated at EUR 213 million per year and investment needs were estimated to be at least EUR 789 million per year while investment baselines were EUR 576 million per year (see Annex 6). Investing in the circular economy is key to achieving the transition, notably in eco-design, repair, reuse, remanufacturing, and uptake of new business models. The current separate waste collection system and treatment infrastructures, notably for plastic and biowaste, are not sufficient to divert waste from landfilling.

Table A9.1:**Overall and systemic indicators on circularity**

AREA	2016	2017	2018	2019	2020	2021	EU-27	Latest year EU-27
Overall state of the circular economy								
Material footprint (tonnes/capita)	11.7	13.5	14.8	15.8	14.7	-	13.7	2020
YoY growth in persons employed in the circular economy (%)[1]	5.5	-2.1	4.3	-2.0	-	-	2.9	2019
Water exploitation index plus (WEI+) (%)	1.2	1.4	1.4	1.3	-	-	3.6	2019
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.6	1.5	1.4	1.4	1.6	1.6	2.3	2021
Circular material use rate (%)[2]	6.5	6.9	7.0	7.3	5.2	6.8	11.7	2021
Recycling rate (% of municipal waste)	34.7	35.0	37.4	35.9	32.0	34.9	49.6	2021
Built environment								
Recovery rate from construction and demolition waste (%)[3]	99.0	-	99.0	-	98.0	-	89.0	2020
Soil sealing index (base year = 2006)[4]	105.2	-	108.3	-	-	-	108.3	2018
Agri-food								
Food waste (kg per capita)[5]	-	-	-	-	93.0	-	131.0	2020
Composting and digestion (kg per capita)	30.0	32.0	32.0	36.0	39.0	39.0	100.0	2021

(1) Persons employed in the circular economy only tracks direct jobs in selected sub-sectors of NACE codes E, C, G and S; (2) the circular material use rate measures the share of material recovered and fed back into the economy in overall material use; (3) the recovery rate of construction and demolition waste includes waste which is prepared for reuse, recycled or subject to material recovery, including through backfilling operations; (4) soil sealing: 2016 column refers to 2015 data; (5) food waste includes primary production, processing and manufacturing, retail and distribution, restaurants and food services, and households.
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 the targets in that Programme for digital transformation by 2030, this Annex describes Hungary'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 the Recovery and Resilience Plan (RRP). Hungary allocates 29.8% of its total RRP budget to digital (EUR 1.737 billion) ([76]).

The Digital Decade Policy Programme sets out a pathway for Europe's successful digital transformation by 2030. The Programme provides a framework for assessing the EU's and Member States' digital transformation, notably via the Digital Economy and Society Index (DESI). It also provides a way for the EU and its Member States to work together, including via multi-country projects, to accelerate progress towards the Digital Decade digital targets and general objectives ([77]). More generally, several aspects of digital transformation are particularly relevant in the current context. In 2023, the European Year of Skills, building the appropriate skillset to make full use of the opportunities that digital transformation offers is a priority. A digitally skilled population increases the development and adoption of digital technologies and leads to productivity gains ([78]). Digital technologies, infrastructure and tools all play a role in the fundamental transformation needed to adapt the energy system to the current structural challenges ([79]).

Hungary scores below the EU average on digital skills. Only about half of the population possess at least basic digital skills. The proportion of specialists in information and communications technology (ICT) in the Hungarian workforce has increased slightly in recent years but remains relatively low. The Hungarian RRP includes several measures that target digital skills.

Broadband connectivity remains above the EU average and on 5G, Hungary has again made considerable progress during the last year. Fixed very high capacity network (VHCN) coverage went up from 72% in 2021 to 80% in 2022, surpassing the EU average of 72%. Overall 5G coverage in Hungary increased to 58% in 2022 (up by 40 percentage points from the previous year), however it is still significantly lower than the EU average which stands at 81%.

The digitalisation of businesses remains a major challenge in Hungary. Only 52% of SMEs in Hungary had at least a basic digital intensity in 2022 (compared with an EU average of 69%). The use of advanced digital technologies, such as big data and artificial intelligence, is half and less than half the EU average, and 13 percentage points lower for the use of cloud computing services (21% in Hungary against 34% in the EU). Further investments and large-scale, targeted and effective measures are necessary to speed up the digital transformation of businesses, especially SMEs including the development of digital skills in order to increase SMEs' use of digital technology and to develop digital start-ups.

Hungary continued to progress on the digitalisation of public services, but its performance still remains below the EU average. Hungary's scores for providing digital public services to both businesses and citizens are below the EU average, mainly because of low scores on cross border services. For electronic identification (eID), cross border e-identification is expected to become available in 2023 via the eIDAS scheme. The use of national eID cards remains limited, as most users prefer the client gate trusted profile ([80]). The Hungarian RRP includes several measures that focus on further digitalisation in healthcare. Regarding the access to electronic health records Hungary scores above the EU average with a score of 79 out of 100.

([76]) The share of financial allocations that contribute to digital objectives has been calculated using Annex VII of the RRF Regulation.

([77]) The Digital Decade targets as measured by DESI indicators and complementary data sources are integrated to the extent currently available and/or considered particularly relevant in the MS-specific context.

([78]) 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).

([79]) The need and possible actions for a digitalisation of the energy system are laid out in the Communication 'Digitalisation the energy system – EU action plan' (COM(2022)552.

([80]) In the fourth quarter of 2021 there were approximately 5.7 million national eID cards capable of e-identification in Hungary (covering 58% of the population). At the end of 2022, the client gate trusted profile had 5.54 million active profiles. In more than 97.75 % of the cases the basic Client Gate was used, while the national eID card was chosen by 1.5 % of the users.

Table A10.1:**Key Digital Decade targets monitored by DESI indicators**

	DESI 2021	DESI 2022	DESI 2023	DESI 2023	(EU)
Digital skills					
At least basic digital skills	**NA**	**49%**	**49%**	**54%**	**80%**
% individuals		2021	2021	2021	2030
ICT specialists ([1])	**3.8%**	**3.9%**	**3.9%**	**4.5%**	**20 million**
% individuals in employment aged 15-74	2020	2021	2021	2021	2030
Digital infrastructure/connectivity					
Fixed Very High Capacity Network (VHCN) coverage	**49%**	**72%**	**80%**	**73%**	**100%**
% households	2020	2021	2022	2022	2030
Fibre to the Premises (FTTP) coverage ([2])	**49%**	**64%**	**70%**	**56%**	**-**
% households	2020	2021	2022	2022	2030
Overall 5G coverage	**7%**	**18%**	**58%**	**81%**	**100%**
% populated areas	2020	2021	2022	2022	2030
5G coverage on the 3.4-3.8 GHz spectrum band	**NA**	**NA**	**21%**	**41%**	**-**
% populated areas			2022	2022	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**NA**	**NA**	**52%**	**69%**	**90%**
% SMEs			2022	2022	2030
Big data ([3])	**7%**	**7%**	**7%**	**14%**	**75%**
% enterprises	2020	2020	2020	2020	2030
Cloud ([3])	**NA**	**21%**	**21%**	**34%**	**75%**
% enterprises		2021	2021	2021	2030
Artificial Intelligence ([3])	**NA**	**3%**	**3%**	**8%**	**75%**
% enterprises		2021	2021	2021	2030
Digitalisation of public services					
Digital public services for citizens	**NA**	**64**	**68**	**77**	**100**
Score (0 to 100)		2021	2022	2022	2030
Digital public services for businesses	**NA**	**74**	**76**	**84**	**100**
Score (0 to 100)		2021	2022	2022	2030
Access to e-health records	**NA**	**NA**	**79**	**71**	**100**
Score (0 to 100)			2023	2023	2030

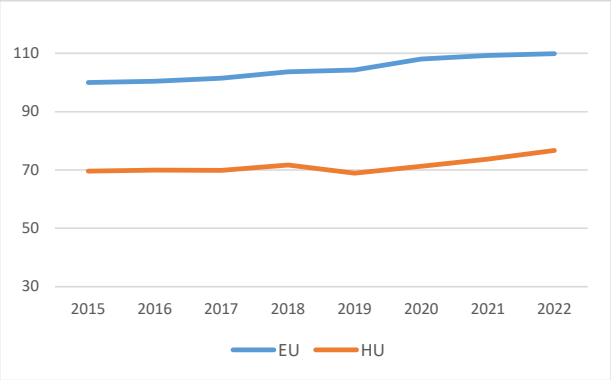
(1) The 20 million target represents about 10% of total employment.
(2) The Fibre to the Premises coverage indicator is included separately as its evaluation will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.
(3) At least 75 % of Union 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

This Annex provides a general overview of the performance of Hungary's research and innovation system, which is essential for delivering the twin green and digital transition.

Hungary is an 'emerging innovator' with performance at 68.9% of the EU average. According to the European Innovation Scoreboard (EIS) 2022 ([81]) Hungary's innovation performance is above the average of the emerging innovators (50%).

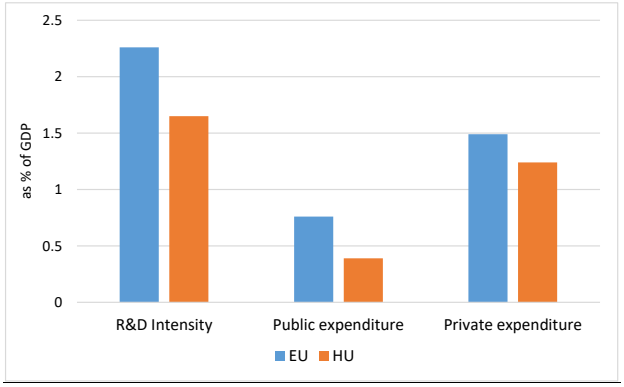
Graph A11.1: **EIS performance Hungary 2015-2022**



Source: European Innovation Scoreboard 2015-2022

Public spending on R&D remains low and undermines the country's scientific performance. Total R&D intensity ([82]) reached 1.65% of GDP in 2021 and has not reached the EU2020 target initially set at 1.8%. While business spending on R&D relative to GDP almost doubled between 2010 and 2021 ([83]), public expenditure on R&D, which stood at 0.39% of GDP in 2021, remained below the EU average of 0.76%. The share of scientific publications by Hungarian authors that were among the most cited in the world has been increasing over the years and reached 6.3% in 2019 but remained below the 9.8% EU average. Strengthening Hungary's public research system will be key to achieving the government's vision of being one of the five most competitive countries in the EU and spending 3% of the GDP on R&D by 2030 ([84]).

Graph A11.2: **R&D intensity in 2021**



Source: Eurostat, 2022

The lack of skilled human resources is holding back scientific and innovation performance. While the number of new graduates in science and engineering doubled in the last decade, the percentage of the population aged 25-34 who have successfully completed tertiary education was just 32.9% in 2021 ([85]) – well below the EU average of 41.2% and one of the lowest in the EU. The lack of skilled human resources and high brain drain ([86]) puts the country's innovation output at risk in the medium and long term. Several Hungarian universities were brought under the ownership and management of a board of trustees lead by government officials and business people closely associated with the government. Concerns remain about teachers' and researchers' autonomy in this process. While the new formations have not brought the desired performance improvements, the government's increasing influence over higher education and scientific institutions may hinder the country's capacity to retain its talent. ([87]) (See also annex 15 on education).

Despite generous public funding for business R&I, innovation remains driven by big foreign

([81]) 2022 European Innovation Scoreboard (EIS), Country profile: Hungary https://ec.europa.eu/assets/rtd/eis/2022/ec_rtd_eis-country-profile-hu.pdf The EIS provides a comparative analysis of innovation performance in EU countries, including the relative strengths and weaknesses of their national innovation systems (also compared to the EU average).

([82]) Defined as gross domestic expenditure on R&D (GERD) as a percentage of GDP

([83]) It increased from 0.68% of GDP in 2010 to 1.24% of GDP in 2021.

([84]) Hungary's research development and innovation strategy 2021-2030.

([85]) Eurostat: change in definition in 2021.

([86]) Source: EC, Knowledge ecosystems in the new ERA, 2022.

([87]) The situation in Hungary suggests that the latest organisational/institutional changes are increasing uncertainty among researchers – not knowing what institutions will be like or what they might expect – which is affecting researchers ' confidence in the future. Source: EC, Knowledge ecosystems in the new ERA, 2022.

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

Hungary	2010	2015	2019	2020	2021	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	1.13	1.34	1.47	1.59	1.65	2.26
Public expenditure on R&D as % of GDP	0.43	0.34	0.36	0.36	0.39	0.76
Business enterprise expenditure on R&D (BERD) as % of GDP	0.68	0.98	1.11	1.22	1.24	1.49
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	5	4.9	6,3:	:	:	9.8
PCT (Patent Cooperation Treaty) patent applications per billion GDP (in PPS)	1.4	1.5	1.1	:	:	3.3
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	8.8	9	10.7	10.5	11.2	7.1
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.057	0.029	0.01	:	:	0.054
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	7.2	10.7	9.3	17.6	:	16
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	0.265	0.353	0.245	:	:	0.194
R&D tax incentives: foregone revenues as % of GDP	0.163	0.148	0.053	:	:	0.100
Green innovation						
Environment-related patents	12,1	10,8	11	:	:	13,3
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.01	0.039	0.061	0.08	0.087	0.074
Employment in fast-growing enterprises in 50% most innovative sectors	7.5	8.7	8.1	:	:	5.5

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

firms. In the EU, Hungary is leading in financing business enterprise expenditure on R&D (BERD) from public money. At 0.201% of GDP, Hungary's publicly funded BERD is twice the EU average. The country's innovation output is led by big firms engaging in medium- and high-tech manufacturing ([88]). When it comes to patent applications, the decreasing trend shows that the foreign firms tend to repatriate results away from Hungary back to headquarters ([89]). However, Hungary has many non-innovators with potential to innovate – 44.9% compared with the EU share of 19.9%. ([90])

Businesses do not systematically seek out public-private collaboration. The small scale of business enterprise funding for public research reveals an asymmetry in the public-private relationship. Public expenditure on R&D financed by business enterprise (national) as a percentage of GDP is one of the lowest in the EU and shrank by 20.2% between 2010 and 2021. The roll-out out of the eight higher education and industry cooperation centres (FIEKs) during the 2014-2020 programming period demonstrated well-established cooperation between science and industry. Maintaining these linkages would strengthen knowledge and technology transfer.

([88]) Value added in high-tech manufacturing as % of total value added is above the EU average and in leading in Europe.

([89]) See key innovation indicators table: Patent Cooperation Treaty per billion GDP (in purchasing power standards)

([90]) Source: EIS.

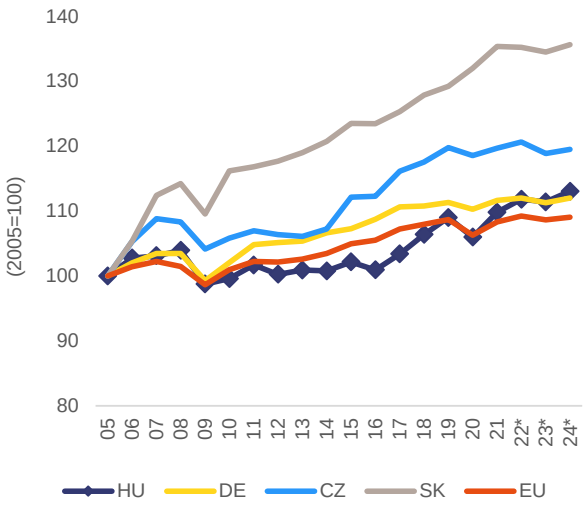
Hungarian businesses are confronted by a tough economic climate related to high and rising inflation and energy prices. The energy crisis is having a substantial impact on the operations of businesses, especially for energy-intensive industries and small and medium sized enterprises (SMEs), which dominate the Hungarian economy. By late 2022 producer prices were increasing more rapidly than in almost all other Member States ([91]). The confidence indicator in industry was also plummeting ([92]), adversely affected notably by the decrease in orders recorded in manufacturing.

Hungary's growth has relied on employment growth, but prospects need a stronger contribution from productivity. Productivity growth has been slow since the financial crisis, with productivity per person per hour worked 27.3% less than for the EU27. Real labour productivity per person employed increased by 6.0% in 2021 after the pandemic-related declines of 2020. It is forecast to have increased by 3.4% in 2022. For industry, real labour productivity per person increased by 4% in 2021, above EU performance; gross value added per person employed at constant prices increased by 5.2% in 2021, below the EU average of 7%. Total factor productivity performance has improved this decade but remains below direct peers, indicating further potential for productivity growth (chart A12.1).

Productivity varies significantly according to exposure to international markets and by size of firm (chart A12.2). There are large productivity differences between globally oriented large firms and the rest of the economy, particularly small and domestically orientated firms. The difference between traded and non-traded sectors points to the importance of global competition in promoting higher productivity.

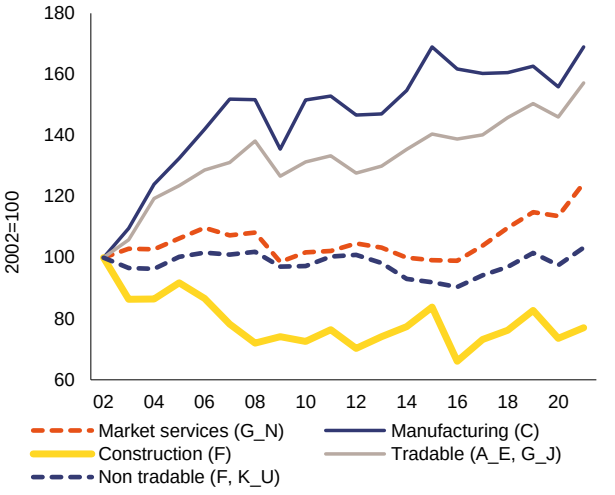
Hungarian firms are often in the low value-added stage of global supply chains, focused on midstream activities, which would explain their poor relative productivity performance, and make them particularly vulnerable to value chain disruptions. Productivity performance in the construction sector is consistently below the EU average, and that of manufacturing and market services. According to the 2021 SME Access to Finance (ESAF) Index (under the European Investment Fund) ([93]), Hungarian SMEs faced some of the least favourable financing conditions in the EU. Access to public financial support is below the EU average, and in a context of a dominant number of SMEs in the economy - this can be a considerable constraint to the scaling up and growth of these companies.

Graph A12.1: **Total factor productivity growth**



Source: European Commission calculations based on AMECO

Graph A12.2: **Productivity performance by sector**



Source: European Commission calculations based on AMECO

Despite an ambitious national target, the share of renewable sources in gross final energy consumption is among the lowest in the EU. In 2020 electricity production capacity

([91]) Statistics | Eurostat (europa.eu) Producer prices in industry, total - quarterly data

([92]) Statistics | Eurostat (europa.eu) Industrial confidence indicator

([93]) EIF working_paper_2022/83.pdf

from renewable sources, at 16%, was one of the lowest in the EU ([94]). Most progress has been made under solar power generation, which has seen a 28% increase in generating capacity since the beginning of 2021.

Progress is at least partially hindered by permitting delays. Administrative authorisation is governed regionally or locally, which has the benefit of reflecting specific local aspects, but it has fragmented the interpretation of national laws and regulations. The administrations approach and interpret guidelines differently, leading to differing permitting procedures from locality to locality. This fractures the regulatory framework and introduces instability for investors.

Hungary ranked 22nd amongst Member States in the 2022 Digital Economy and Society Index (DESI), with performances below the EU average and objectives in several dimensions. Hungary performs best on broadband connectivity and worst on the integration of digital technology in firms' activities. The COVID-19 pandemic highlighted weaknesses in the areas of digital skills, digitalisation of companies and digital public services. According to the 2022 Digital Economy and Society index, only 45% of SMEs have at least a basic level of digital intensity, compared with a just under 60% for the EU ([95]).

Hungary is an open economy, highly integrated into the single market and relying heavily on EU sources (27.3% of value added is sourced from the rest of the EU compared to an EU average of 19.7%). However, barriers to competition increasingly threaten this, hindering the free functioning of the market and creating an unstable business environment. The authorities sign strategic agreements with large manufacturing firms and their investment projects benefit from significant government support. Outside of these areas, in an endeavour to create "national champions", government decrees are used to impose price caps on production costs (for example in the construction sector), distorting the free functioning of the market.

Service activities face several barriers to competition. In retail, frequent changes in regulation create a chronically unstable business environment. Specific retail restrictions (e.g. introduction of price caps for certain food commodities and a specific retail tax) hold back efficiency gains and affect competition. The government can exempt merger and acquisition transactions from being examined by the competition authority, with the result that no examination ever takes place. The provision of several services is entrusted to state-owned or private firms specifically created for these purposes, which operate without competition. Slow and costly insolvency procedures may also hinder the restructuring of failing businesses. A number of key milestones in the Hungarian recovery and resilience plan relate to tackling these weaknesses. Hungary has the highest number of regulated professions in the EU, with professions like tourist guides and patent/trademark agents having levels of restrictiveness above the EU average. The fragmented system regulating civil engineers hinders the free movement of these professionals, and rules spreading responsibility over different categories of professionals in the same area of activity impact on service provision.

The Single Market Scoreboard indicates that Hungary performs relatively well at transposing EU law. The transposition deficit stood at 0.7% at the end of 2021 (EU average 1.6%). In contrast, there were 30 ongoing infringement procedures, above the EU average of 27 per Member State ([96]).

Hungary's economic development relies on a capacity to remove obstacles to sustainable productivity growth. While part of the productivity slowdown reflects increasing labour shortages (with the consequent inclusion of low-productivity workers), structural weaknesses remain significant. A comprehensive SME strategy, particularly one focused on digitalisation and digital skills, could benefit the country, as well as addressing weaknesses in the business environment. The 2022 European Innovation Scoreboard shows Hungary is among the innovation laggards, with performance relative to the EU decreasing over time (see also Annex 11 on innovation).

The procurement market remains vulnerable to anticompetitive practices. The proportion of

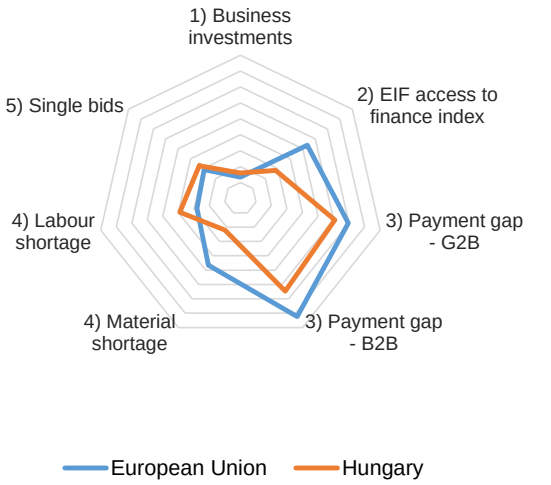
([94]) Statistics | Eurostat (europa.eu) Electricity production capacities by main fuel groups and operator

([95]) For a more complete analysis, see Annex 10 on Digital Transformation

([96]) 2022 Single Market Scoreboard

contracts awarded in procedures where there was just one bidder, despite recent decreases, is still high at 33% ([97]). This lack of competition in public procurement decreases the incentives to innovate for those companies that cannot enter the procurement market, as well as for the companies benefitting from the situation. In February 2021, the government set itself an ambitious target of reducing the percentage of public procurement procedures with only a single bid to less than 15%.

Graph A12.3: **Business environment and productivity drivers**



Source: 1) % of GDP, 2021 Eurostat;
2) composite indicator, 2021 European Investment Fund access to finance index;
3) average payment delay in number of days, 2022 Intrum;
4) % of firms in manufacturing facing constraints, 2022 European Commission business consumer survey;
5) proportion of contracts awarded with a single bidder, 2022 Single Market Scoreboard.

The implementation of reforms and investment under the Hungarian recovery and resilience plan (RRP) ([98]) represents a historic opportunity to tackle many of these challenges and to pave the way for a successful transition of the Hungarian economy in both the digital and green sectors. Particularly important in this respect are measures to improve the procurement market, which, if implemented, could improve predictability and transparency in the business environment.

The amendment of the Public Procurement Act to include public interest trusts under the obligation to conduct public procurement procedures is an important development. The updates of the Electronic Procurement System to allow the structured extraction of all contract award and subcontracting data and the decision to use the Single Market Scoreboard methodology for measuring single bids are essential aspects of increasing transparency and the quality of the available data on public procurement. The recently adopted performance measurement framework, if effectively implemented in practice, will have positive effects on the public procurement market. The achievement of these milestones is forecast for between 2022 and 2026. It will help to improve the quality of available data, and the transparency and efficiency of public procurement in Hungary.

([97]) Single Market Scoreboard (europa.eu) – proportion of procurement procedures published in TED during 2022.

([98]) Recovery and resilience plan for Hungary (europa.eu)

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

	POLICY AREA	INDICATOR NAME	2018	2019	2020	2021	2022	EU27 average (*)
HEADLINE INDICATORS	Economic Structure	Net private investment, level of private capital stock, net of depreciation, % GDP [(1)]	6.6	8.6	6.7	7.7	8.7	**3.7**
		Net public investment, level of public capital stock, net of depreciation, % GDP [(1)]	2.3	2.6	2.4	2.2	1	**0.4**
		Real labour productivity per person in industry (% yoy)[(2)]	0.1	2.3	-3.9	4.8	4.4	**1.4**
	Cost competitive-ness	Nominal unit labour cost in industry (% yoy)[(2)]	4.3	2.9	-0.5	1.6	-0.3	**2.9**
RESILIENCE	Shortages	Material shortage (industry), firms facing constraints, % [(3)]	10	9	9	23	22	**47**
		Labour shortage using survey data (industry), firms facing constraints, % [(3)]	61	59	24	39	39	**28**
		Vacancy rate (business economy)[(4)]	2.8	2.4	1.8	2.2	2.7	**3.1**
	Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials [(5)]	0.2	0.18	0.2	0.2	0.21	**0.18**
		Installed renewables electricity capacity, % of total electricity produced [(6)]	7.8	12.1	16.1	19.7	n.a.	**50.9**
SINGLE MARKET	Single Market integration	EU trade integration, % [(7)]	60.7	59.6	57.5	58.4	66.1	**45.8**
	Restrictions	EEA Services Trade Restrictiveness Index [(8)]	0.05	0.05	0.05	0.05	0.05	**0.05**
	Public procurement	Single bids, % of total contractors [(9)]	40	40	39	40	33	**29**
BUSINESS ENVIRONMENT - SMEs	Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle [(10)]	6.1	9.2	10.8	7.6	8.4	**29.6**
	Business demography	Bankruptcies, Index (2015=100)[(11)]	n.a.	n.a.	n.a.	44.1	81.6	**86.8**
		Business registrations, Index (2015=100) [(11)]	n.a.	n.a.	n.a.	166.8	165.4	**121.2**
	Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment [(12)]	5	1	18	12	11	**13**
		Payment gap - public sector, difference in days between offered and actual payment [(12)]	10	8	20	8	14	**15**
		Share of SMEs experiencing late payments in past 6 months, % [(13)]	n.a.	50.9	43.9	34.6	40.6	**43**
	Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1 [(14)]	0.25	0.31	0.28	0.13	n.a.	**0.46**
		EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1 [(14)]	0.11	0.12	0.13	0.06	n.a.	**0.23**

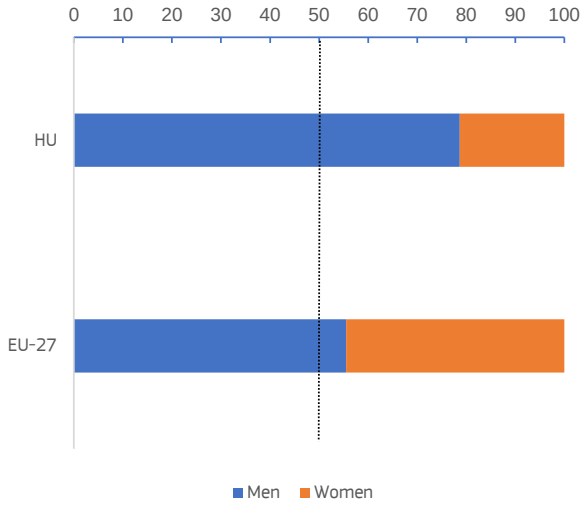
(*) Last available year

Source: (1) AMECO, (2) Eurostat, (3) ECFIN BCS, (4) Eurostat, (5) COMEXT and Commission calculations, (6) Eurostat, (7) Eurostat, (8) OECD, (9) Single Market Scoreboard, (10) EIB survey, (11) Eurostat: (12) Intrum, (13) SAFE Survey, (14) EIF SME Access to Finance Index.

This Annex outlines the performance of Hungary's public administration, which is essential for providing services and carrying out reforms. Overall, Hungary ranks in the bottom third of the 27 Member States (EU-27) on government effectiveness ([99]). Hungary has included reforms in its recovery and resilience plan (RRP), aimed at improving judicial independence and the quality of legislation, which include stakeholder engagement and consultation.

Hungary has a relatively young civil service. The ratio of staff aged 49 or below to those aged 50 or above is higher than the EU average. However, the share of employees in the public administration with higher education is relatively low, unlike the participation of civil servants in adult learning (Graph A13.2). Gender parity in senior civil service positions is the lowest of the EU-27 (Graph A13.1). The rules governing the civil service are rather fragmented, with an increasing number of sectors operating according to their own separate regulatory frameworks for human resources. The recruitment rules are opaque.

Graph A13.1: **Public administration. Share of women and men in senior positions (2022 data)**



Source: European Institute for Gender Equality

Hungary has a low ranking on selected fiscal framework indicators. Its performance on the national medium-term budgetary framework, and the strength of its fiscal rules' indices, are well below the EU average. Hungary`s independent fiscal institution has a narrower scope of activity than that of the average EU country. Despite increased monitoring of rules and greater alignment of fiscal rules with EU regulations, there is still room to further develop monitoring and forecasting of the fiscal situation.

The justice system performs efficiently but concerns about judicial independence persist. The RRP includes a comprehensive set of key institutional reforms to strengthen rule of law, including strengthening the independence of the judiciary ([100]). The average time it takes to resolve litigious civil and commercial cases at first instance is short (145 days in 2021), as is the average time to resolve administrative cases at first instance (103 days in 2021). Digital tools are widely used in courts, including an electronic case management system, and technology for distance communication and to provide a secure remote working environment for judges and staff.

The quality of Hungary's regulatory governance is weakened by the frequent use of emergency procedures for law adoption. Emergency procedures that deviate from the standard legislative process, and expedited procedures initiated during the COVID-19 pandemic extended since the beginning of the Russian war of aggression against Ukraine, eliminate the possibility of effective stakeholder consultation before voting of legislation ([101]). Classified decisions of the government, linked to the allocation of funds, have introduced opaque practices with a fiscal impact. *Ex ante* regulatory impact assessments and *ex post* legislative scrutiny are also limited in practice by the extensive use of state of emergency procedures for adopting legislation, following the relevant constitutional changes in May 2022. The RRP includes measures to improve the quality of law-making, including with respect to impact assessment, to support the effective involvement of stakeholders and social partners, and to improve the transparency of public information.

There is room for improving the digitalisation of public services (Table A13.1 and Annex 10).

([99]) Worldwide Governance Indicators, 2021.

([100]) For a more detailed analysis of the performance of the justice system in Hungary, see the 2023 EU Justice Scoreboard (forthcoming) and the country chapter for Hungary of the 2023 Rule of Law Report (forthcoming).

([101]) European Commission, Public administration and governance: Hungary, Publications Office of the EU, 2023 (forthcoming).

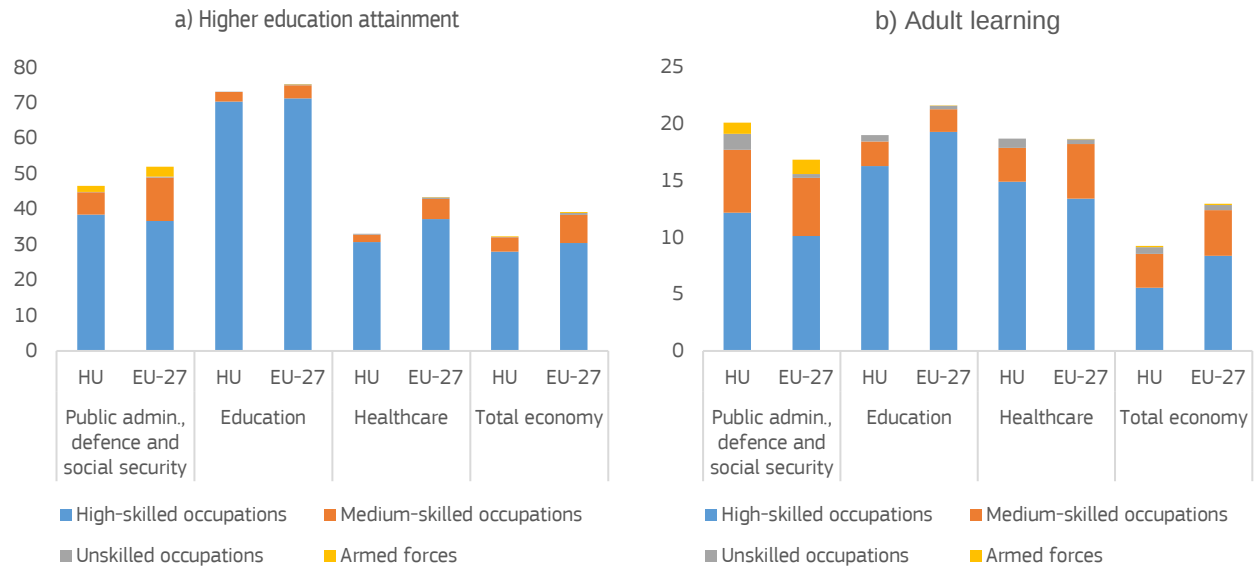
Table A13.1: **Public administration indicators**

HU	Indicator ([1])	2017	2018	2019	2020	2021	2022	EU-27([2])
E-government and open government data								
1	Share of individuals who used the internet within the last year to interact with public authorities (%)	59.4	66.6	63.8	70.1	81.5	n/a	64.8
2	E-government benchmark overall score ([3])	n/a	n/a	n/a	63.3	66.2	68.1	72.9
3	Open data and portal maturity index	n/a	n/a	0.3	0.3	0.6	0.7	0.8
Educational attainment level, adult learning, gender parity and ageing								
4	Share of public administration employees with tertiary education (levels 5-8, %)	33.8	36.6	38.8	41.2	45.4 (b)	46.6	52.0
5	Participation rate of public administration employees in adult learning (%)	11.9	12.3	11.0	10.6	8.3 (b)	20.1	16.9
6	Gender parity in senior civil service positions ([4])	51.0	63.2	64.2	63.4	62.6	57.4	11.0
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	2.5	2.5	2.4	2.2	2.1 (b)	2.1	1.5
Public financial management								
8	Medium term budgetary framework index	0.6	0.6	0.6	0.6	0.6	n/a	0.7
9	Strength of fiscal rules index	0.7	0.8	0.8	0.8	0.8	n/a	1.5
Evidence-based policy making								
10	Regulatory governance	1.27	n/a	n/a	n/a	1.28	n/a	1.7

([1]) High values denote a good performance, except for indicator # 6. ([2]) 2022 value. If not available, the 2021 value is shown. ([3]) Measures the user centricity 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: ICT use survey, 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).

The share of e-government users is above the EU average, unlike the e-government benchmark's overall index.

Graph A13.2: **Hungary. a) Share of 25-64 year olds with tertiary education attainment level by sector and occupation, b) Participation rate of 25-64 year olds in adult learning (%) by sector and occupation**



Source: European Commission, based on the Labour Force Survey. 2022 data

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 Hungary's progress in implementing the Pillar's 20 principles and EU headline and national targets for 2030 on employment, skills and poverty reduction.

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

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24, 2021)	12.4
	Share of individuals who have basic or above basic overall digital skills (% of population aged 16-74, 2021)	49.1
	Youth NEET rate (% of population aged 15-29, 2022)	10.8
	Gender employment gap (percentage points, 2022)	9.8
	Income quintile ratio (S80/S20, 2021)	4.15
Dynamic labour markets and fair working conditions	Employment rate (% of population aged 20-64, 2022)	80.2
	Unemployment rate (% of active population aged 15-74, 2022)	3.6
	Long term unemployment (% of active population aged 15-74, 2022)	1.2
	GDHI per capita growth (2008=100, 2021)	142.8
Social protection and inclusion	At risk of poverty or social exclusion rate (% of total population, 2021)	19.4
	At risk of poverty or social exclusion rate for children (% of population aged 0-17, 2021)	23.3
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2021)	50.6
	Disability employment gap (percentage points, 2021)	28.8
	Housing cost overburden (% of total population, 2021)	2.4
	Children aged less than 3 years in formal childcare (% of population under 3-years-old, 2021)	13.8
	Self-reported unmet need for medical care (% of population 16+, 2021)	1.1

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

Update of 27 April 2023. Members States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 2023. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.
Source: Eurostat

The overall labour market performance continues to improve, but considerable challenges remain for the long-term unemployed, Roma, persons with disabilities and people with low skills. The employment rate (20-64 age group) continued to improve despite a slowing economy. It reached 80.2% in 2022 and is above the EU average of 74.7%. Over the same period, the unemployment rate (15-74 age group) decreased by 0.5 pps to 3.6% (below the EU average of 6.1%). The rate of young people not in education, employment or training (NEET, 15-29 age group) remains relatively low at 10.8% in 2022 (EU: 11.7%). However, women, people with low educational attainment, people living in rural areas and Roma are two to three times more likely to become NEET. In terms of the long-term unemployment rate, Hungary performs better than average (1.2% vs EU 2.4%). At the same time, one third of registered unemployed people are long-term unemployed while the duration of unemployment benefits is for a maximum of 3 months under the current legislation. The employment gap for Roma remains substantial at 28 pps in 2021 ([102]). The disability employment gap has also remained persistently high above 28 pps (EU: 23.1 pps) since 2014. The employment gap between low- and high-skilled people has been increasing in recent years (to 33.3 pps). Moreover, regional disparities in employment and unemployment rates also persist (see Annex 17). Half of the active labour market policy funding in 2023 is still focused on public work schemes. There is therefore still room for improvement in the public employment service and social protection system to provide timely and adequate assistance and reach Hungary's target to increase the employment rate to 85% by 2030. Furthermore, social dialogue in Hungary remains among the weakest in the EU and has further deteriorated recently. The introduction of constraints on teachers' right to strike in 2022 curbs workers' rights and may harm the attractiveness of the teaching profession.

There is still scope for improving gender equality in the labour market. The overall gender employment gap is better than the EU average (9.8 pps vs 10.6 pps in the EU in 2022). Among Roma, however, the gap grew significantly from 15.2 pps in 2019 to 23.5 pps in 2021. Inequality of pay is higher than the EU average (the gender pay gap in 2021 was 17.3% vs 12.7% in the EU). Caring responsibilities still keep one out of five women who would like to work from entering the labour market. Participation of children aged less than 3 years in formal childcare was 13.8% in 2021, well below the EU average

([102])Labour Force Survey, Hungarian government

(36.2%). Faced with a high demand (70 000 places), the government plans to create new crèche places, helped by significant Recovery and Resilience Facility (RRF), cohesion funds and domestic funds contributions. Gender equality could be further improved with measures to promote sharing care responsibilities between parents and introduce non-transferable parental leave.

Hungary still faces challenges in terms of a high early school leaving rate, especially in rural areas, and poor performance in basic skills. The country's early school leaving rate is higher than the EU average (12.4% vs 9.6% in 2022) and has been stagnating since 2011. Northern Hungary (23.6%) and rural areas (19.7%) are particularly affected, with some of the highest early school leaving rates in the EU (see Annex 13). Overall, the share of 16-18-year-olds in education in recent years has been falling and is below the EU average. About a quarter of 15-year-olds are low-performers in basic skills ([103]). Educational attainment and socio-economic background affect basic literacy and numeracy skills rates of adults more heavily than the OECD average ([104]). The share of people with at least basic digital skills was 49% in 2021 compared to 54% in the EU. Values are significantly lower among people with low education, unemployed people and those aged above 55. This creates challenges for employability, especially among the most vulnerable. ESF+ resources are earmarked to prevent and tackle early school leaving.

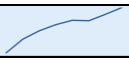
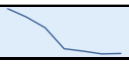
Despite the challenges related to basic and digital skills and need for upskilling, the share of adults participating in adult learning is low. The share of people aged 25 to 64 who had participated in adult training (over the past 4 weeks) was 5.9% in 2021, compared to 10.8% in the EU, and is significantly lower among low-skilled and unemployed people. Unemployed people also lack sufficient support to access relevant training, and upskilling opportunities for low-skilled and disadvantaged people are scarce. There is room for improvement of the enabling policy framework to achieve tangible results, especially for the low-skilled and disadvantaged groups. This would help reach Hungary's target of 60% of adults participating in training every year by 2030. To improve the population's digital skills, Hungary plans to invest at least EUR 400 million of RRF and ESF+ funds in digital education in schools, vocational education and training and higher education institutions, as well as digital skills training for adults, including those from vulnerable groups.

There is room for social policies to tackle the growing economic and social difficulties. The severe material and social deprivation rate was still one of the highest in the EU in 2021 (10.2% vs 6.3% in the EU) and was especially high among children (15.2% vs 7.5% in the EU) and Roma (55.5%). The share of those who have difficulties in making ends meet is much higher among persons with disabilities (17.4% vs 9.5% in the EU). Households without stable employment – including temporary contract workers, who have limited access to social protection – have faced a weakening social safety net over the past decade. The real value of the minimum income has halved since 2010, and its adequacy is one of the lowest in the EU (21% of the poverty threshold vs 59% in the EU). Food prices increases were among the highest in the EU in 2022 (47.2% vs 17.9% in the EU) and particularly affected the poorest families who spend the highest share of their income on food. Amendments to social protection legislation reduced the state's legal responsibility to provide social care. According to the legislation, social care is a last resort when people are not able to take care of themselves and relatives and the municipality do not fulfil their care duty. To promote social inclusion, the 'Catching-up municipalities' initiative will improve access to social services, healthcare, education, employment and housing in the 300 poorest municipalities and will focus on children. It will be financed by EU funds from the ESF+, the ERDF and the RRF. This will help Hungary meet its target of decreasing the material and social deprivation rate of families with children to 13%, thereby reducing the number of people at risk of poverty or social exclusion by 292 000 by 2030.

([103])OECD, PISA 2018.

([104])Literacy and numeracy skills. 2110109 - Hazai jelentés.indd (nive.hu).

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

Indicators	Latest data	Trend (2015-2022)	National target by 2030	EU target by 2030
Employment (%)	80.2 (2022)		85	78
Adult learning[1] (%)	54.8 (2016)		60	60
Poverty reduction[2,3] (thousands)	-58 (2021)		-292	-15 000

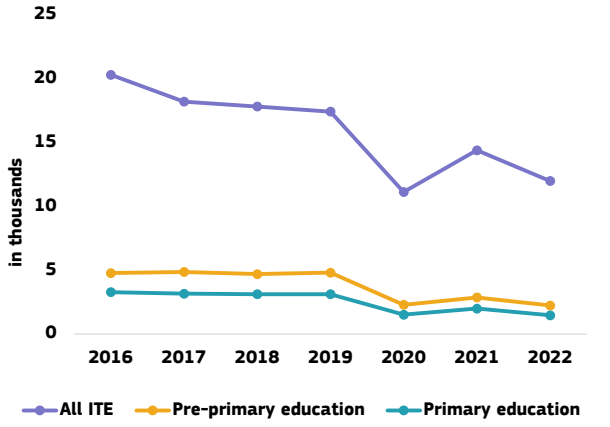
(1) Adult Education Survey, adults in learning in the past 12 months. (2) Number of people at risk of poverty or social exclusion (AROPE), reference year 2019. (3) Hungary expresses its national target as a reduction of the material and social deprivation rate of families with children to 13% and thereby a reduction of the number of people AROPE by 292 000. ***Source:*** Eurostat, DG EMP

Source:

This Annex outlines the main challenges for Hungary's education and training system in light of the EU-level targets and other contextual indicators under the European Education Area strategic framework, based on the 2022 Education and Training Monitor.

Teacher shortages are increasingly challenging. The teacher population is ageing; in 2020, 46% of teachers were aged 50 or older ([105]). Teacher salaries in Hungary are one of the lowest both in absolute terms and in purchasing power parity comparison among the EU countries that are OECD members. They are equivalent to only 47-52% of the salaries of other tertiary graduates, depending on educational level (EU-22 average: 82-92%). Applications for initial teacher education have dropped greatly over the past 3 years. Dropout rates are high and less than half of graduates actually enter the profession. The government, with co-financing from the European Social Fund Plus, intends to raise the level of teacher salaries, by January 2025, to a minimum of 80% of the average level of tertiary graduate workers. Nevertheless, the teaching profession remains of little attraction because of the high workload and the low level of school autonomy.

Graph A15.1: **Number of initial teacher education (ITE) applications between 2016 and 2022**



Source: Felvi database

Participation in early childhood education and care (ECEC) corresponds to the EU average but teacher shortages affect quality. From age 3, 92.8% of children participate in ECEC (EU average: 93.0%; EU-level target: 96%). However, the regional coverage of kindergartens remains unbalanced: in 2020, 31% of settlements had no kindergarten (KSH, 2020). The government amended the employment conditions in kindergartens in 2020, thereby reducing the required number of qualified teaching staff. Nevertheless, in December 2022, there were still over 2 450 teacher vacancies in Hungary's 4 575 kindergartens ([106]).

Basic skills are below the EU average and the rate of early leavers from education and training (ELET) has not improved over the past decade. In 2022, ELET was 12.4% (EU average: 9.6%; EU-level target: 9%). The rate is higher in the least-developed districts, in vocational training schools, and among Roma (62.7% v 9.9% among non-Roma in 2021) (MNTFS, 2022). Participation data shows that lowering the compulsory school age from 18 to 16 in 2012/13 had a significant negative impact on school attendance (KRTK-KTI, 2021). Building on former projects funded under the European Social Fund, Hungary plans to continue providing support to schools with a high share of dropouts and low performance, with a view to prevent early school leaving. Education outcomes at the age of 15, as measured by the 2018 OECD Programme for International Student Assessment (PISA), are significantly below EU averages and have declined since 2009. The low levels of effectiveness and fairness in the school system are likely linked to the low level of curricular autonomy, the lack of socio-economic diversity within schools and the low salaries for teachers (European Commission, 2018). The national recovery and resilience plan includes measures to improve the quality of lower-secondary education and the provision of special education, and to support teachers in acquiring new specialisations.

The number of tertiary graduates cannot meet the growing demand for a highly skilled workforce. At 31.9%, Hungary has one of the lowest rates of the population aged 25-34 holding a tertiary degree and this rate has only increased by less than 1 percentage point since 2015 (EU average: 42.0%; EU-level target: 45.0%). This is partly linked to high dropout rates, which are highest in IT, technical and science programmes. In response, Hungary plans to implement measures on preventing dropout in several study fields from the Economic Development and Innovation Operational Programme+. More than one third of bachelor's studies are finished without a degree

([105])[educ_uoe_perp01].

([106])https://kozigallas.gov.hu

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

				2015		2022	
Indicator			**Target**	**Hungary**	**EU27**	**Hungary**	**EU27**
[1]Participation in early childhood education (age 3+)			**96%**	**90.7%**	**91.9%**	**92.8% [2020]**	**93.0% [2020]**
[2]Low achieving 15-year-olds in:		**Reading**	**< 15%**	**27.5%**	**20.0%**	**25.3% [2018]**	**22.5% [2018]**
		Mathematics	**< 15%**	**28.0%**	**22.3%**	**25.6% [2018]**	**22.9% [2018]**
		Science	**< 15%**	**26.0%**	**21.1%**	**24.1% [2018]**	**22.3% [2018]**
Early leavers from education and training (age 18-24)	**[3]Total**		**< 9 %**	**11.6% [b]**	**11.0%**	**12.4%**	**9.6%**
	[3] By gender	*Men*		12.0% [b]	12.5%	13.0%	11.1%
		Women		11.2% [b]	9.4%	11.7%	8.0%
	[4] By degree of urbanisation	*Cities*		6.7% [b]	9.6%	5.3%	8.6%
		Rural areas		15.9% [b]	12.2%	19.7%	10.0%
	[5] By country of birth	*Native*		11.6% [b]	10.0%	12.3%	8.3%
		EU-born		: [b, u]	20.7%	: [u]	20.3%
		Non EU-born		: [b, u]	23.4%	: [u]	22.1%
[6]Equity indicator (percentage points)				**:**	**:**	**28.7 [2018]**	**19.3 [2018]**
[7]Exposure of VET graduates to work based learning	**Total**		**≥ 60% (2025)**	**:**	**:**	**32.3%**	**60.1%**
Tertiary educational attainment (age 25-34)	**[8]Total**		**45%**	**32.1%**	**36.5%**	**31.9%**	**42.0%**
	[8] By gender	*Men*		26.1%	31.2%	26.7%	36.5%
		Women		38.4%	41.8%	37.4%	47.6%
	[9] By degree of urbanisation	*Cities*		47.3%	46.2%	54.3%	52.2%
		Rural areas		17.7%	26.9%	15.6%	30.2%
	[10] By country of birth	*Native*		32.1%	37.7%	31.4%	43.0%
		EU-born		32.4%	32.7%	40.7%	39.5%
		Non EU-born		: [u]	27.0%	49.1%	35.7%
[11]Share of school teachers (ISCED 1-3) who are 50 years or over				37.4%	38.3%	46.2% [2020]	39.2% [2020]

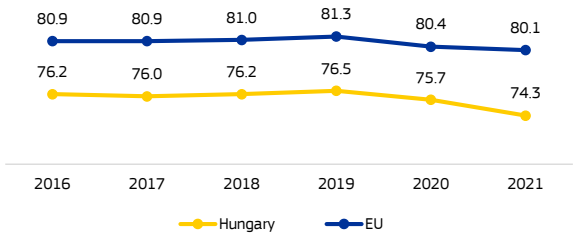
Source: (1.3,4.5,7.8,9.10,11) = Eurostat; 2 = OECD (PISA); 6 = European Commission (Joint Research Centre). Notes: Data is not yet available for the remaining EU-level targets under the European Education Area strategic framework, covering underachievement in digital skills and participation of adults in learning. The equity indicator shows the gap in the share of underachievement in reading, mathematics and science (combined) among 15-year-olds between the lowest and highest quarters of socio-economic status.

(OH, 2020). The employment rate of recent tertiary graduates (91.1%) exceeds the EU average (84.9%), indicating a high demand. The share of socio-economically disadvantaged pupils passing the secondary school leaving exam and applying for tertiary education is only 3% (Varga, 2021). The proportion of students with disabilities remains below 1% and university students with special needs face serious barriers to their studies (Petri & Markos, 2021). By 2022, all but six state universities were restructured to come under the control of trust funds set up by the government. The boards have all decision-making powers in the universities' key areas without being accountable for their own operation and decisions, either to the government or to the academic body of the university. In its statement of February 2023, the European University Association observed that the configuration of boards undermines the autonomy of Hungarian universities and recommended concrete changes (EUA, 2023). The European Commission raised concerns about academic freedom with regard to Hungary's compliance with the EU Charter of Fundamental Rights. Overall participation in adult learning remains fairly limited (see Annex 14).

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 Hungary.

In 2021, life expectancy at birth remained among the lowest in the EU, continuing a decline since the peak in 2019. Between 2019 and 2020, the drop in life expectancy was in line with the overall EU trend. In 2021, however, life expectancy at birth in Hungary fell by more than 1 year, compared to an EU average decline of approximately 3.6 months (Graph A16.1). This reflects the much higher COVID-19 mortality in 2021, which increased by almost threefold compared to 2020 ([107]). In 2020, the leading causes of death were diseases of the circulatory system ("cardiovascular diseases") followed by cancer and COVID-19. Cancer mortality is among the highest in the EU, with colorectal, lung and breast cancer accounting for almost half of all cancer deaths in 2020. Mortality rates due to preventable and treatable causes are significantly higher than the EU average, reflecting the high prevalence of health risk factors in the Hungarian population and issues with the quality of health services.

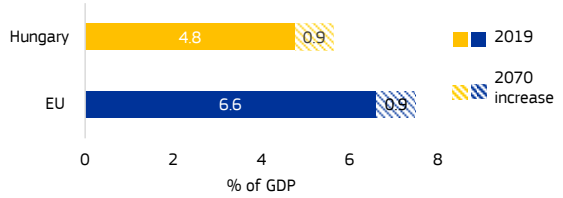
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat

Although health expenditure has increased, it remains lower than in most other Member States. Between 2013 and 2019, Hungary's level of health spending per capita grew by an average annual rate of 2.5% in real terms, which is slightly below the 3% rate observed on average across the EU. As a result of the COVID-19 pandemic, between 2019 and 2020, health spending per capita increased by 11.4% – roughly double the EU average rate over the same period. This increase was mostly financed through public sources. However, when measured as a share of GDP, health spending in Hungary remains low at 7.3%, compared to 10.9% on average across the EU. The only area where Hungary's health spending per capita is comparable to the EU average is spending on medical goods (i.e. primarily retail pharmaceuticals) (EUR 470 vs EUR 596 per capita in the EU overall). However, medical goods absorb a share of Hungary's total health budget that is about 10 percentage points (pps) higher than the EU average (28.1% vs 18.2%). Public spending on health in Hungary is projected to increase by 0.9 pps of GDP by 2070, in line with the expected trend across the EU (see Annex 21 and Graph A16.2).

Graph A16.2: **Projected increase in public expenditure on healthcare over 2019-2070**



AWG reference scenario
Source: European Commission / EPC (2021)

In 2020, spending on preventive care rose in step with the trend observed across the EU. Between 2019 and 2020, spending on preventive care in Hungary rose by 26 % – an increase in line with the general trend observed in the EU. The relative share of health expenditure dedicated to prevention also rose, from 3.1% to 3.7% – a proportion slightly above the EU average. Across the EU, significant increases in prevention-focused health spending in 2020 were primarily driven by extraordinary expenditure on disease detection, surveillance, control and response programmes as part of the public health response to COVID-19.

The government is taking measures to ease the persistent shortage of workers in the healthcare sector. The health system in Hungary suffers from a chronic scarcity of medical professionals. With 3.1 (3.3 in 2021) practising physicians and only 6.6 nurses per 1 000 inhabitants in 2020, Hungary has significantly fewer doctors and nurses than the EU average (3.9 and 8.3 per 1 000 inhabitants, respectively).

([107])Based on data provided directly by Member States to ECDC under the European Surveillance System (data current as of 13 April 2023).

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

	2017	2018	2019	2020	2021	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	179.0	175.9	173.2	179.6	NA	91.7 (2020)
Cancer mortality per 100 000 population	341.0	335.6	327.7	320.9	NA	242.2 (2020)
Current expenditure on health, % GDP	6.7	6.6	6.3	7.3	NA	10.9 (2020)
Public share of health expenditure, % of current health expenditure	68.9	69.5	68.7	71.4	NA	81.2 (2020)
Spending on prevention, % of current health expenditure	3.0	3.1	3.2	3.7	NA	3.4 (2020)
Acute care beds per 100 000 population	427	423	421	423	NA	387.4 (2019)
Doctors per 1 000 population *	3.3	3.4	3.5	3.1	3.3	3.9 (2020)
Nurses per 1 000 population *	6.5	6.6	6.6	6.6	6.6	8.3 (2020)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day (total consumption in CY and CZ) **	13.4	13.7	13.3	10.0	10.8	14.5 (2021)

Note: The EU average is weighted for all indicators, except for (*) and (**), for which the EU simple average is used. The simple average for (*) uses data for 2020 or most recent year if former not available. Doctors' density data refer to practising doctors in all countries except EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries except FR, PT, SK (professionally active) and EL (nurses working in hospitals only).
Source: Eurostat; except: ** ECDC

Health workers are spread unevenly across the country, and shortages are concentrated in the more economically disadvantaged regions. Low wages compared to neighbouring countries (particularly for nurses) combined with poor working conditions explain the shortages, despite the large increase in the number of medical and nursing graduates trained in Hungary in the past decade. The latter hints at the existence of persistent staff retention issues. To reduce attrition of health graduates and health workers, in recent years, Hungary has been implementing a sizeable, multi-year programme of gradual salary increases for clinical staff, and has set up an incentive scheme to improve the attractiveness of medical training programmes.

Concerns exist about the accessibility of primary care services in the near future due to the dwindling number and the age profile of general practitioners (GPs). Against the backdrop of the above-mentioned general shortage of healthcare staff, GPs are in particularly short supply. Over the past 5 years, the number of GPs decreased by about 6% ([108]) as the number of new GPs failed to compensate for the significant attrition due to retirement in recent years.. The low number of GPs impinges on the overall efficiency of the health system, as overworked GPs are unable to 'gatekeep' patient referrals to specialist care. The relatively unappealing remuneration package for GPs, particularly in rural areas, is a key determinant of these persistent and worsening shortages. Moreover, the current age composition of GPs aggravates concerns about their supply in the near future: the average age of practising GPs is around 60 , and a significant proportion of them are anticipated to retire in the next few years. Hungary is planning to alleviate the impact of GP shortages through an array of reforms aimed at promoting group practices, and through investments in primary care financed by the Recovery and Resilience Facility.

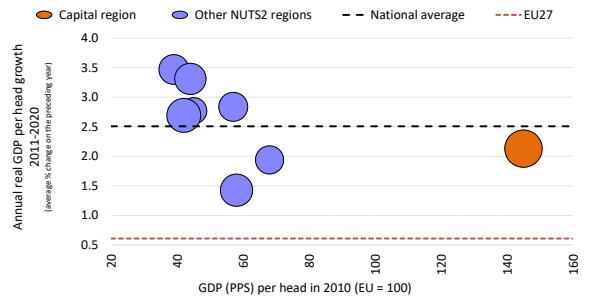
Hungary allocated 22% of its recovery and resilience plan (RRP) to healthcare investments and reforms. Hungary is among the EU countries that allocated the largest relative share of their RRP to investments and reforms in the healthcare sector. Hungary plans to make an ambitious range of investments of more than HUF 510 billion (equivalent to approximately EUR 1.3 billion) to modernise hospital infrastructure, strengthen primary care, improve efficiency of services and expand the use of digital health information systems in the Hungarian healthcare system between 2023 and the end of 2026. In the area of reforms, the Hungarian government has started taking measures to eradicate the practice of informal payments and improve doctors' financial and working conditions. These changes are expected to alleviate shortages of clinical personnel in Hungary's public healthcare system and to reduce inequalities in access to care associated with corruption.

([108])Hungarian Central Statistical Office (2023). Retrieved from: https://www.ksh.hu/stadat_files/ege/hu/ege0007.html.

This Annex showcases the economic and social regional dynamics in Hungary, providing an update on the economic, social and territorial cohesion in and among the Hungarian regions compared with the rest of the EU and the main regional economic recovery challenges.

Regional disparities in Hungary have steadily decreased since 2010 but remain significant. Real GDP per capita (PPS) growth in 2011 - 2020 was lower in some of the more developed regions of the country (i.e. Budapest, Nyugat-Dunántúl and Pest), than in the four least developed ones (Graph A17.1). There was therefore some internal convergence within Hungary during this period, but at a rather slow pace, which explains why Hungary has converged only slowly to the EU average. GDP per capita is only around half the EU average in four of Hungary's eight NUTS 2 regions (Észak-Magyarország, Észak-Alföld, Dél-Alföld and Dél-Dunántúl). In the capital region, Budapest, it was 156%, but only 49% in Észak-Alföld. Internal disparities between counties are also significant. In 2021, GDP per capita exceeded 90% of the national average in 3 counties in Közép- and Nyugat-Dunántúl but remained under 75% of the national average in no fewer than 11 counties across the country.

Graph A17.1: **GDP per capita (2010) and GDP growth (2011-2020) in Hungary**



Source: EUROSTAT, DG REGIO Elaboration

Disparities in GDP per capita are mainly driven by the large labour productivity gaps between the relatively more developed and the four least developed regions of the country. Productivity is highest in Budapest and Pest county (71% of the EU average) but is much lower in the four least developed regions of the country where it is only at around 60% of the EU average.

There are marked differences in the ability of regions ability to offer an attractive and sustainable environment for firms and residents, as it is reflected in the values of the Regional Competitiveness Index: it is below or just above 83.4% of the EU average in the four least developed regions, while Közép-Dunántúl it is 82.3%, in Nyugat-Dunántúl 83.9% and in Budapest 105.5%. There are significant differences in SMEs' value added at factor cost, which is above or close to the national average in Budapest, Közép- and Nyugat-Dunántól, as well as in Észak-Magyarország, but is between 60% and 70% in the other three least developed regions - due to the lack of endowment in key assets such as transport infrastructure and human capital.

There are significant regional gaps in ICT uptake. The gap is high between the relatively more developed and four least developed regions and between cities and rural areas. In 2021, the ratio of internet users using internet for interaction with public authorities ranged from 89% in Budapest to 64% in Észak-Alföld. It was 83% in cities, but only 60% in rural areas. This is linked to the ratio of individuals with basic or above basic level of digital skills, which was 59% in cities, while only 38% in rural areas. As for ICT uptake in enterprises, territorial disparities are more pronounced with respect to the use of more advanced technologies (2021). For example, the use of cloud-based services was above or close to 30% in Budapest (EU average 34%), Közép-Dunántúl and Pest county, but under 20% in the other regions.

The four least developed regions have experienced depopulation. The average annual decrease per 1000 residents between 2011 and 2020 was almost 9 in Észak-Magyarország and around 7 in Dél-Dunántúl and Dél-Alföld and 5 in Észak-Alföld, while the annual increase was more than 8 in Pest county. The negative population trend has reversed in Közép-Dunántúl and Nyugat-Dunántúl since 2017.

Regional disparities in educational attainment are also significant. The rate of early school leavers was in 2021 as high as 22.3% in Észak-Magyarország and 16.9% in Észak-Alföld, but just 5.4% in Budapest and 6.8% in Nyugat-Dunántúl.

There are significant disparities between regions in terms of young people who are neither in employment nor in education and training (NEET). Közép-Magyarország (6%),

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

NUTS Code	GDP per head	Productivity (GVA (PPS) per person employed)	Real productivity growth	Real GDP per head growth	Population growth	Unemployment rate	Early leavers from education and training	Regional Competitiveness Index	Severe material and social deprivation
	PPS, 2021	GVA (PPS) per person employed, 2020	Average % change on the preceding year, 2011-2020	Average % change on the preceding year, 2011-2020	Average annual change per 1000 residents, 2011-2020	% of active population, 2021	% of population from 18 to 24 years, 2021	Index - values range between 0 and 100, 2022	% of population, 2020
European Union	100.0	100.0	0.2	1.0	2.0	7.0	9.7	100.0	6.8
Hungary	74.0	67.0	0.6	2.5	-2.3	4.0	12.0	83.4	10.7
Budapest	156.0	71.0	0.2	2.1	0.2	2.9	5.4	105.5	7.4
Pest	61.0	71.0	-0.1	1.4	8.3	3.0	9.1	105.5	8.7
Közép-Dunántúl	70.0	65.0	0.8	2.8	-2.2	2.1	11.2	82.3	8.3
Nyugat-Dunántúl	68.0	69.0	0.7	1.9	1.1	2.2	6.8	83.9	5.2
Dél-Dunántúl	51.0	61.0	1.1	2.8	-7.4	4.8	13.2	69.9	12.4
Észak-Magyarország	52.0	63.0	1.3	3.5	-8.7	6.2	22.3	66.0	20.3
Észak-Alföld	49.0	61.0	0.7	2.7	-5.0	7.1	16.9	67.9	15.4
Dél-Alföld	54.0	62.0	1.1	3.3	-6.6	4.5	10.4	73.3	8.3

Source: EUROSTAT

Közép- Dunántúl and Nyugat-Dunántúl (8.1% and 5.8%) are below the national average, but the ratio is strikingly higher in Észak-Magyarország (18.4%) and Észak-Alföld (17.1%), as well as in rural areas (17.2%).

The share of persons with less than primary, primary and lower secondary education levels within the population aged 25-64 is significantly higher in some of the four least developed regions (Észak-Magyarország: 21.8%, Észak-Alföld: 20.8 %, Dél-Dunántúl: 18.2%) than the national average, which is in turn less than the EU average (13.7% vs. 20.7%). In addition, the share of low-educated people among younger cohorts indicates an increasing trend in Észak-Magyarország 26.0% in 2021 (20.2% in 2017). Tertiary educational attainment (EU average 33.4%, national average 29.3%) was under or just around 25% in all regions except Budapest and Pest (55.5% and 33.4% respectively).

Participation in education and training among the population aged 25-64 is higher in some of the **four least developed regions than in some relatively more developed ones:** Nyugat-Dunántúl had a rate of 3.6%, compared with Észak-Magyarország (6.2%), Észak-Alföld (6.7%) and Dél-Alföld (6.4%).

Labour market conditions are generally better in the central and western regions. In 2021, the lowest unemployment rate was in Közép-Dunántúl (2.1%). It was 2.9% in Budapest but much higher in the four least developed regions (ranging from 4.8% in Dél-Dunántúl to 7.1% in Észak-Alföld). A gap of 10 percentage points remains between the employment rate of Budapest (82.9%) and of certain least developed regions such as Dél-Dunántúl (72.8%) and Észak-Magyarország (72.9%).

There are significant interregional disparities when it comes to the share of the population that is at risk of poverty and social exclusion (2021). This was 9.7% in Közép-Dunántúl, but over 20% in the four least developed regions (reaching 28.7% in Észak-Magyarország). There are marked disparities in the level of severe material and social deprivation (2020), which affected less than 10% of the population in Közép- and Nyugat-Dunántúl, but 12.4% in Dél-Dunántúl, 20.3% in Észak-Magyarország and 15.4% in Észak-Alföld. Poverty and social exclusion is concentrated in the least developed districts and municipalities below the regional level, as well as in rural areas.

The impact of the COVID-19 pandemic in terms of GDP per capita was generally more severe in the most developed regions of the country, such as Közép-Dunántúl (-5.0%), Nyugat-Dunántúl (-4.7%) and Budapest (-3.2%) where some sectors such as tourism were particularly badly hit by the pandemic. It was milder in the four least developed regions, where the impact ranged from -2.0% in Dél-Alföld to -1.2% in Észak-Alföld.

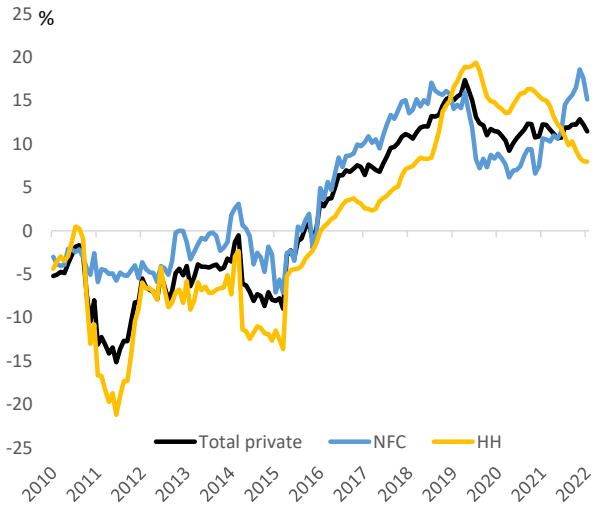
Hungary has a predominantly bank-based financial sector. Total banking-sector assets accounted for 113.3% of GDP in Q3-2022. The domestic ownership of local lenders accounts for roughly 60% of total banking-sector assets. The five largest banks in the system hold 51.7% of total assets. Financing on capital markets remains low, as the market-funding ratio dropped to 40% in 2021 (EU average: 50.8%), and stock market capitalisation is 17.7% of GDP (EU average: 85.5%). In the capital markets, the 2020 launch of the green-bond market in Hungary is an important milestone (the green-bond market now accounts for 4% of the Hungarian bond market in cumulative outstanding value since 2020), and this may lead to the market penetration of ESG-based investment products.

The Hungarian banking sector remains profitable and resilient. Banking-sector profitability remained high in Q3-2022, with return on equity of 10.5%. Banking-sector profitability may come under pressure if higher lending rates and interest income do not offset the additional costs from windfall taxes and caps on interest rates for certain types of loans (e.g. mortgages and SME loans). The banking solvency ratio was 18.0% in Q3-2022 (EU average: 18.6%), signalling the robustness of the banking sector. Hungarian banks remain well capitalised, with a common equity tier 1 ratio of 16.1% in Q3-2022 (EU average: 15.3%). Banks have also benefited from abundant central bank liquidity, which stood at roughly 8.7% of total liabilities at the end of 2022. The MNB, Hungary's central bank, has decided to increase the countercyclical capital buffer rate to 0.5% from 1 July 2023 for the first time since its introduction 6 years ago.

The non-performing loan (NPL) ratio remained rather stable but risks to the quality of portfolios remain. The NPL ratio slightly increased to 3.3% in Q3-2022 from 3.2% in 2021 (EU average for Q3-2022: 1.8%). Asset quality slightly deteriorated following the phasing out of the pandemic-related moratoria on loans at the end of 2021. According to the MNB ([109]), several banks anticipate higher volumes of loan-loss provisioning in 2022 and 2023, primarily in their SME portfolios. A clear decline in housing-market activity may pose a manageable risk to the banking sector. The current economic environment – especially the energy crisis – is putting pressure on the debt-servicing capacity of corporates and households.

The war in Ukraine and sanctions against Russia are expected to affect trends in corporate and household lending. In the twelve months to Q3-2022, lending to non-financial corporations outpaced lending to households in the same twelve-month period. In Q3-2022, lending to non-financial corporations had increased by 15.1% year-on-year, partly due to the support of subsidised credit schemes. Lending to households dropped by 8.0% year-on-year in Q3-2022 as demand decreased. Corporate and household lending, while still strong in early 2022, are expected to fall due to the economic uncertainty, as well as to the higher interest rate and inflation paths. This trend may also be driven by banks tightening their credit standards in response to the changing economic environment.

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



Source: ECB.

Household debt continued to rise moderately. Household debt rose from 18.5% of GDP in 2019

([109]) https://www.mnb.hu/letoltes/financial-stability-report-november-2022.pdf.

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

	2017	2018	2019	2020	2021	2022	EU	Median
Total assets of the banking sector (% of GDP)	95.4	92.6	90.9	107.4	110.1	113.3	276.8	207.9
Share (total assets) of the five largest banks (%)	49.6	50.0	52.7	50.1	51.7	-	-	68.7
Share (total assets) of domestic credit institutions (%)[1]	53.7	52.8	57.1	57.8	58.6	60.2	-	60.2
NFC credit growth (year-on-year % change)	10.2	13.6	14.1	8.9	10.7	15.1	-	9.1
HH credit growth (year-on-year % change)	2.6	7.3	16.6	14.3	15.1	8.0	-	5.4
Financial soundness indicators:[1]								
- non-performing loans (% of total loans)	8.4	5.4	4.2	3.6	3.2	3.3	1.8	1.8
- capital adequacy ratio (%)	16.2	18.5	18.0	18.3	19.7	18.0	18.6	19.8
- return on equity (%)[2]	14.5	14.7	14.3	7.6	12.7	10.5	6.1	6.6
Cost-to-income ratio (%)[1]	64.4	63.9	64.7	61.0	58.4	58.0	60.6	51.8
Loan-to-deposit ratio (%)[1]	71.8	72.7	76.0	74.4	75.5	76.8	88.6	78.0
Central bank liquidity as % of liabilities	4.0	2.9	3.7	9.6	10.4	8.8	-	2.9
Private sector debt (% of GDP)	69.9	68.7	67.3	76.8	80.5	-	-	120.7
Long-term interest rate spread versus Bund (basis points)	264.5	266.3	271.8	273.5	343.4	642.8	-	93.3
Market funding ratio (%)	35.2	33.1	32.5	35.7	40.0	-	50.8	40.0
Green bonds issued to all bonds (%)	-	-	-	1.6	2.1	4.2	3.9	2.3

1-3 **4-10** **11-17** **18-24** **25-27** Colours indicate performance ranking among 27 EU Member States.

(1) Last data: Q3 2022.
(2) Data is annualized.
Source: ECB, Eurostat, S&P Global Capital IQ Pro
Source:

to 21% of GDP in 2021 ([110]). According to the MNB, the rise in the cost of living (through the increase in utility costs and food prices) may result in debt-servicing difficulties for an additional 4-7% of households with credit. This is in addition to risks

linked to the repricing of loans, which for the moment are mitigated by an interest-rate cap for many debtors ([111]).

In December 2021, the European Systemic Risk Board (ESRB) ([112]) issued a warning to Hungary on medium-term vulnerabilities in the residential real-estate market as a potential risk to the country's financial stability. The ESRB considered the main vulnerabilities to be: (i) signs of house-price overvaluation; (ii) elevated house-price growth; (iii) high rates of growth in mortgage credit; and (iv) rapid growth in household indebtedness.

The real-estate market is expected to slow down. After the extraordinary rise of 24.8% in Q2-2022, the annualised increase in house prices has slowed downin Q3-2022. According to the MNB, the supply of new homes can be expected to fall in the coming months due to a decrease in demand. In Q3-2022, the number of transactions decreased by 34% year-on-year, while the volume of mortgage loans declined by more than a third.

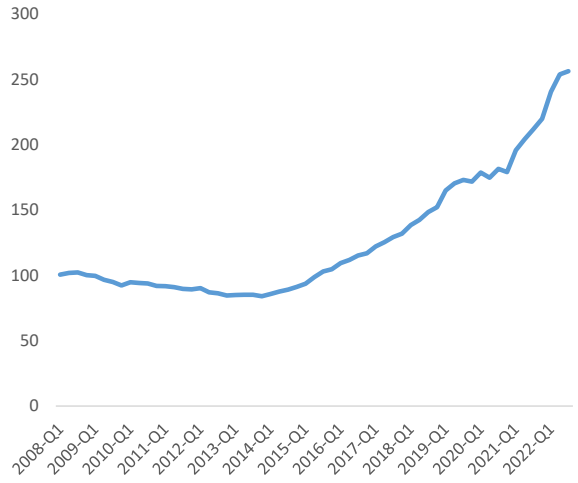
The insurance sector is highly concentrated. The top five market participants account for 60% of all premium revenue. The total assets of all insurers are equivalent to 4.9% of GDP in Q2-2022 (compared to 113.3% of GDP for the banking system), which is relatively low (EU average: 59.5%) According to the MNB, the sector's profitability is good (ROE 24%). In Q2-2022, insurers' solvency ratio was 175.8% (EU average: 268.5%). The unexpectedly high inflation in Hungary, like elsewhere, is expected to negatively affect the non-life insurance sector.

([110]) https://ec.europa.eu/eurostat/databrowser/view/tipspd22/default/table?lang=en.

([111])https://www.mnb.hu/letoltes/financial-stability-report-november-2022.pdf.

([112]) https://www.esrb.europa.eu/news/pr/date/2022/html/esrb.pr220211~9393d5e991.en.html.

Graph A18.2: **Housing prices**



(1) 2015=100
Source: Eurostat.

This Annex provides an indicator-based overview of Hungary's tax system. It includes information on the tax structure (the types of tax that Hungary 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 and on the risks of aggressive tax planning activity.

Hungary's tax revenues are below the EU aggregate as a proportion of its GDP, with a relatively heavy and increasing reliance on consumption taxes and a relatively low and decreasing reliance on labour taxes. Table A19.1 shows that Hungary's revenues from labour taxes as a share of GDP were below the EU aggregate (14.6% in 2021) while the revenues from consumption taxes as a share of GDP was considerably above the EU aggregate (13.8% in 2021). Revenue from capital taxation decreased from 7.1% of GDP in 2010 to 5.5% in 2021. In turn, revenue from consumption taxes increased from 12.4% of GDP in 2010 to 13.8% in 2021 as the VAT rate was increased to 27% in 2012 and a series of sectoral consumption-related taxes were introduced. Revenue from environmental taxation is close to the EU aggregate (2.0% of GDP in 2021 as compared with 2.2% in the EU), but recurrent property taxation remains relatively low (0.4% of GDP in 2021 compared with the EU aggregate of 1.1%). Hungary's Recovery and Resilience Plan (RRP) contains measures to simplify the taxation system and to strengthen it against the risk of aggressive tax planning (as explained below). There are nevertheless currently no signs that the 9% corporate tax rate (the lowest in the EU) will be changed. (Hungary may be allowed to incorporate the local business tax into the newly agreed EU-wide 15% minimum tax for the largest corporations (the 'Pillar 2' Directive.) Simplification measures are planned to reduce the number of taxes by 2024. Sector-specific extra profit taxes were introduced or amended seven times in the second half of 2022.

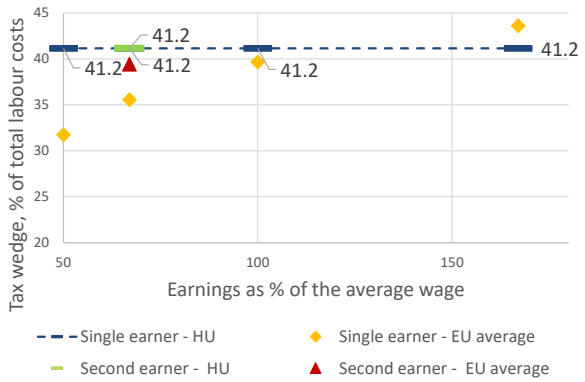
Hungary's labour tax burden is significantly higher than the EU average for those earning low wages. Graph A19.1 shows that in 2022 the total labour tax burden was much higher in Hungary than the EU average for single people at 50% of the income level of the average wage but close to the EU average for high-income earners. Second earners at a wage level of 67% of the average wage, whose spouses earn the average wage, are also subject to a tax wedge that is higher than the EU average.

Table A19.1: **Taxation indicators**

		Hungary					EU-27				
		2010	2019	2020	2021	2022	2010	2019	2020	2021	2022
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	36.8	36.3	36.0	33.9		37.9	39.9	40.0	40.6	
	Labour taxes (as % of GDP)	17.3	16.6	16.2	14.6		20.0	20.7	21.3	20.9	
	Consumption taxes (as % of GDP)	12.4	13.9	14.0	13.8		10.8	11.1	10.7	11.2	
	Capital taxes (as % of GDP)	7.1	5.8	5.8	5.5		7.1	8.1	8.0	8.5	
	Total property taxes (as % of GDP)	1.1	1.0	1.1	0.9		1.9	2.2	2.2	2.2	
	Recurrent taxes on immovable property (as % of GDP)	0.3	0.4	0.4	0.4		1.1	1.2	1.2	1.1	
	Environmental taxes as % of GDP	2.6	2.3	2.2	2.0		2.4	2.4	2.2	2.2	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	41.0	44.6	43.6	43.2	41.2	33.9	32.3	31.9	32.1	31.7
	Tax wedge at 100% of average wage (Single person) (*)	46.6	44.6	43.6	43.2	41.2	41.0	40.1	39.9	39.7	39.7
	Corporate income tax - effective average tax rates (1) (*)		10.2	10.2	10.2			19.5	19.4	19.1	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	12.6	6.5	7.6	4.5		8.6	7.7	8.1	7.8	
Tax administration & compliance	Outstanding tax arrears: total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		12.3	12.0				31.6	40.7		
	VAT Gap (% of VAT total tax liability, VTTL)		9.8	5.1				11.0	9.1		

(1) Forward-looking effective tax rate (OECD).
(2) A higher value indicates a stronger redistributive impact of taxation.
(*) EU-27 simple average
For more data on tax revenues as well as the methodology applied, see European Commission, Directorate-General for Taxation and Customs Union, *Taxation trends in the European Union: data for the EU Member States, Iceland, Norway and United Kingdom: 2021 edition*, Publications Office of the European Union, 2021, https://data.europa.eu/doi/10.2778/843047 and the *Data on Taxation* webpage, data https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en.
For more details on the VAT gap, see European Commission, Directorate-General for Taxation and Customs Union, *VAT gap in the EU: report 2022*, Publications Office of the European Union, 2022, https://data.europa.eu/doi/0.2778/109823.
Source: European Commission, OECD.

Graph A19.1: **Tax wedge for single and second earners, % of total labour costs, 2022**



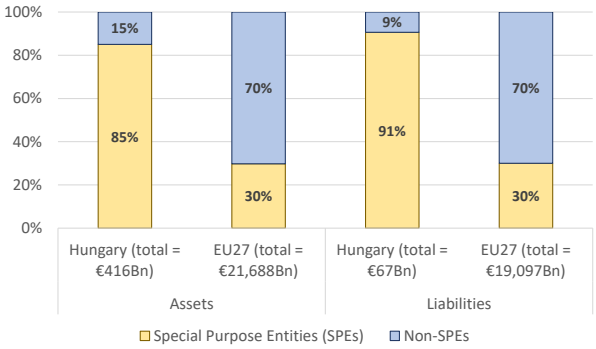
Second earner tax wedge assumes first earner at 100% of the average wage and no children.
Source: European Commission

Hungary performs comparatively well on tax compliance and tax administration. Its RRP includes measures on the digital transformation of tax compliance procedures to make tax reporting of companies easier, simpler and faster. The RRP measures to simplify the tax system (e.g. reducing the number of taxes and on the digital transformation of tax compliance procedures) can also improve the work of tax administrations and facilitate tax compliance by companies. The new customer portal of 2022 with enhanced services for taxpayers is already a step towards reducing administrative burden. Tax arrears have declined slightly by 0.3 pps to 12% of total net revenue. This is significantly below the EU-27 average of 40.7%, although that average is distorted by very large values in a few Member States.

The VAT gap (the gap between revenues actually collected and the theoretical tax liability) decreased by 4.7 pps in 2020 – the most significant decrease in the EU - to 5.1%, which is below the EU-wide gap of 9.1%. The increase in compliance accompanied the introduction of new reporting obligations. ([113])

Large flows of foreign direct investments through special purpose entities indicate companies may be using Hungary for aggressive tax planning (see Graph A19.2)**.** The risk of aggressive tax planning has been identified as an issue to tackle and the Hungarian RRP includes reforms to address it, including increasing data reporting obligations on transfer pricing; the introduction of minimum substance requirements for corporate income tax for shell companies; and broadening the scope of non-deductibility rules for outbound payments to low- or zero-tax jurisdictions.

Graph A19.2: **Stocks of assets and liabilities held through Special Purpose Entities (SPEs) as a % of the respective total asset and liability stocks of Foreign Direct Investment (FDI) in 2021**



Source: European Commission

([113])Hungary introduced real-time electronic reporting of domestic B2B sales invoice data in 2018. In July 2020, the coverage of the system was extended to B2B transactions below the previous limit of HUF 100 000.

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

	2004-07	2008-12	2013-19	2020	2021	2022	forecast 2023	forecast 2024
Real GDP (y-o-y)	3.4	-0.8	3.8	-4.5	7.2	4.6	0.5	2.8
Potential growth (y-o-y)	3.2	0.4	2.6	3.5	3.7	3.4	2.5	2.5
Private consumption (y-o-y)	1.9	-2.2	3.7	-1.2	4.6	6.4	-0.7	2.8
Public consumption (y-o-y)	0.1	0.5	3.0	-0.5	1.7	0.8	0.0	0.9
Gross fixed capital formation (y-o-y)	4.2	-4.4	8.9	-7.1	6.5	1.2	-2.9	1.5
Exports of goods and services (y-o-y)	16.6	2.1	5.9	-6.1	8.8	11.8	3.5	4.5
Imports of goods and services (y-o-y)	13.8	0.1	6.8	-3.9	7.7	11.1	2.0	3.5
Contribution to GDP growth:								
Domestic demand (y-o-y)	2.0	-2.0	4.4	-2.6	4.4	3.6	-1.2	2.0
Inventories (y-o-y)	0.0	-0.4	-0.3	0.0	1.8	0.3	0.4	0.0
Net exports (y-o-y)	1.3	1.6	-0.3	-2.0	1.0	0.7	1.3	0.8
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	-0.6	-0.2	1.0	0.5	0.5	0.5	0.0	0.0
Capital accumulation (y-o-y)	1.4	0.6	1.0	1.4	1.5	1.4	1.1	1.1
Total factor productivity (y-o-y)	2.4	0.1	0.6	1.6	1.7	1.5	1.4	1.4
Output gap	2.8	-3.0	1.0	-4.1	-0.8	0.3	-1.6	-1.2
Unemployment rate	6.9	9.9	5.7	4.1	4.1	3.6	4.2	4.0
GDP deflator (y-o-y)	4.2	3.3	3.5	6.4	6.4	15.3	13.0	3.5
Harmonised index of consumer prices (HICP, y-o-y)	5.5	4.9	1.6	3.4	5.2	15.3	16.4	4.0
HICP excluding energy and unprocessed food (y-o-y)	4.5	4.1	2.2	3.7	4.5	14.2	16.4	5.6
Nominal compensation per employee (y-o-y)	7.9	2.5	3.6	3.0	8.8	15.0	14.6	8.3
Labour productivity (real, hours worked, y-o-y)	4.8	0.4	1.4	0.3	4.1	2.1	1.8	2.7
Unit labour costs (ULC, whole economy, y-o-y)	4.0	2.6	2.3	6.7	2.6	11.9	14.0	5.8
Real unit labour costs (y-o-y)	-0.2	-0.6	-1.1	0.3	-3.6	-2.9	0.9	2.2
Real effective exchange rate (ULC, y-o-y)	2.8	-2.3	-0.9	-5.3	0.2	-1.3	11.1	2.9
Real effective exchange rate (HICP, y-o-y)	3.4	-0.4	-0.9	-4.2	0.4	-3.9	.	.
Net savings rate of households (net saving as percentage of net disposable income)	6.4	5.3	8.3	10.9	13.1	.	.	.
Private credit flow, consolidated (% of GDP)	13.0	0.8	0.3	8.1	12.6	.	.	.
Private sector debt, consolidated (% of GDP)	82.0	110.5	79.1	76.8	80.4	.	.	.
of which household debt, consolidated (% of GDP)	24.9	36.5	21.4	20.8	21.0	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	57.1	74.0	57.6	56.0	59.4	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	.	9.8	10.6	.	2.4	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-3.4	1.5	1.2	3.0	-0.7	-3.0	0.0	-0.8
Corporations, gross operating surplus (% of GDP)	22.5	23.1	24.7	23.8	25.1	26.0	26.3	25.3
Households, net lending (+) or net borrowing (-) (% of GDP)	1.9	2.9	4.9	5.4	6.5	3.0	3.2	4.9
Deflated house price index (y-o-y)	.	-6.7	7.6	1.5	10.0	4.1	.	.
Residential investment (% of GDP)	4.4	3.1	2.5	4.1	3.9	4.6	.	.
Current account balance (% of GDP), balance of payments	-7.7	-1.1	1.8	-1.1	-3.9	-8.2	-3.5	-2.7
Trade balance (% of GDP), balance of payments	-1.2	4.5	6.2	1.9	0.3	-4.1	.	.
Terms of trade of goods and services (y-o-y)	-0.7	-0.5	0.2	2.0	-3.1	-5.4	3.4	0.0
Capital account balance (% of GDP)	0.5	1.9	2.4	2.0	2.5	2.0	.	.
Net international investment position (% of GDP)	-92.1	-102.9	-63.3	-52.1	-52.4	-49.3	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-30.9	-48.3	-15.7	-2.4	-1.3	-5.3	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	75.2	111.6	71.8	64.8	66.7	71.5	.	.
Export performance vs. advanced countries (% change over 5 years)	45.5	10.3	-3.2	8.0	3.2	.	.	.
Export market share, goods and services (y-o-y)	4.9	-5.2	1.5	2.6	-5.0	7.7	0.9	0.7
Net FDI flows (% of GDP)	-2.4	-1.7	-1.7	-1.9	-2.0	-2.2	.	.
General government balance (% of GDP)	-7.2	-4.1	-2.2	-7.5	-7.1	-6.2	-4.0	-4.4
Structural budget balance (% of GDP)	.	.	-2.7	-5.8	-6.7	-6.4	-3.2	-3.8
General government gross debt (% of GDP)	62.3	77.7	73.0	79.3	76.6	73.3	70.7	71.1

(1) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(2) Net international investment position (NIIP) excluding direct investment and portfolio equity shares.
Source: Eurostat and ECB as of 2 May 2023, where available; European Commission for forecast figures (Spring forecast 2023).

This Annex assesses fiscal sustainability risks for Hungary over the short, medium and long term. It follows the same multi-dimensional approach as the European Commission's 2022 Debt Sustainability Monitor, updated based on the Commission's 2023 spring forecast.

1 - Short-term risks to fiscal sustainability are low overall. The Commission's early-detection indicator (S0) does not signal major short-term fiscal risks (Table A21.2). ([114]) Gross financing needs are expected to remain significant at around 14% of GDP in the short term (i.e. over 2023-2024), although declining compared with the recent peak in 2020 (Table A21.1). Financial markets' perceptions of sovereign risk are stable.

2 - Medium-term risks to fiscal sustainability are high overall.

The DSA for Hungary shows that, under the baseline, the government debt ratio is projected to remain above 60% of GDP over the medium term (at 72.5% of GDP in 2033) (Graph 1). ([115]) ([116]) The assumed structural primary balance (a surplus of 0.5% of GDP) contributes to these developments. It appears relatively ambitious compared with past fiscal performance, indicating that the country has limited room for corrective action. At the same time, the baseline projections up to 2033 are overall affected by an unfavourable snowball effect, driven by the tightening of financing conditions, though the impact of Next Generation EU is expected to support real GDP growth at 2.3% on average over 2025-2033. Government gross financing needs are expected to remain significant over the projection period, reaching close to 15% of GDP in 2033, slightly above the level forecast for 2024 (Table A21.1).

The baseline projections are stress tested against four alternative scenarios to assess the impact of changes in key assumptions (Graph 1). For Hungary, reverting to historical fiscal trajectories under the 'historical structural primary balance (SPB)' scenario would lead to a higher government debt ratio. If the SPB gradually converged to a balanced budget (its historical 15-year average), the projected debt-to-GDP ratio would be around 4 pps. higher compared to the baseline in 2033. A permanent worsening of the macro-financial conditions, as reflected under the 'adverse interest-growth rate differential' scenario (i.e., 1 pp. higher than the baseline) would result in a persistently higher government debt-to-GDP ratio, by around 7 pps. of GDP by 2033, as compared with the baseline. A temporary worsening of financial conditions, as reflected in the 'financial stress 'scenario (i.e. temporarily increase of interest rates by 1 pp.), would lead to a broadly similar public debt-to-GDP ratio by 2033 compared with the baseline. The 'lower structural primary balance (SPB)' scenario (i.e., SPB level permanently reduced by half of the cumulative forecast error), would lead to a substantially higher government debt-to-GDP ratio by 2033 (around +24 pps. of GDP) compared with the baseline, with debt increasing to more than 90% of GDP.

Additionally, stochastic debt projections indicate medium risk (Graph 2). ([117]) These stochastic simulations point to a 46% probability of the debt ratio in 2027 being greater than in 2022, entailing medium risk given the initial medium debt level. In addition, such shocks point to high uncertainty (i.e., the difference between the 10th and 90th debt distribution percentiles)

([114]) The S0 is a composite indicator of short-term risk of fiscal stress. It is based on a wide range of macro-financial and fiscal variables that have proven to perform well in the past in detecting situations of upcoming fiscal stress.

([115]) The assumptions underlying the Commission's 'no-fiscal policy change' baseline notably comprise: (i) a structural primary surplus, before ageing costs, of 0.5% of GDP as of 2024; (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 from now); (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 (as for all Member States); (iv) real GDP growth rates from the Commission 2023 spring forecast until 2024, followed by EPC/OGWG 'T+10 methodology projections between T+3 and T+10, i.e. for 2025-2033 (on average 2.3%); (v) ageing costs in line with the 2021 Ageing Report (European Commission, Institutional Paper 148, May 2021). For information on the methodology, see the 2022 Debt Sustainability Monitor (European Commission, Institutional Paper 199, April 2023).

([116]) Table 1 shows the baseline debt projections and its breakdown into the primary balance, the snowball effect (the combined impact of interest payments and nominal GDP growth on the debt dynamics) and the stock-flow adjustment.

([117]) These projections show the impact on debt of 2000 different shocks affecting the government's primary balance, economic growth, interest rates and exchange rates. The cone covers 80% of all simulated debt paths, therefore excluding tail events

surrounding the government debt baseline projections.

3 - Long-term risks to fiscal sustainability are medium overall. ([118])

The S2 sustainability gap indicator (at 4.5 pps. of GDP) points to medium risk, suggesting that Hungary would need to significantly improve its structural primary balance to ensure debt stabilisation over the long term. This result is underpinned by projected ageing costs, in particular due to an expected increase of pension spending (+3.2 pps. of GDP) over the long-term, and – to a lower extent to health care and long-term care spending (Table A21.1). In this respect, reform plans in the RRP are expected to contribute to the fiscal sustainability of the Hungarian pension system.

Combined with debt vulnerabilities, as highlighted by the S1 indicator, overall long-term risks are assessed as medium. Indeed, the S1 sustainability gap indicator signals that a significant consolidation effort of 2.8 pps. of GDP would be needed to reduce debt to 60% of GDP by 2070. This result is mainly driven by the projected increase in ageing costs, mostly due to pension expenditure (1.6 pps. of GDP) and, to a lower extent, an unfavourable initial budgetary position (contribution by 0.3 pp. of GDP) (Table A21.1).

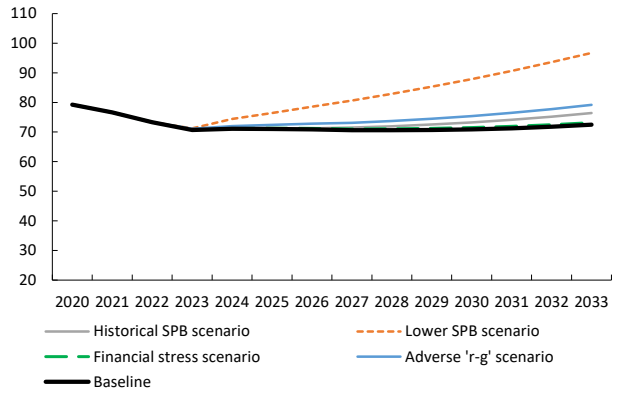
Finally, several additional risk factors need to be considered in the assessment. On the one hand, risk-increasing factors are related to the recent increase in interest rates, Hungary's negative net international investment position, the rising share of short-term and foreign debt, and to contingent liability risks stemming from the private sector, including via the possible materialisation of COVID-19 crisis related state guarantees. On the other-hand, risk-mitigating factors include the lengthening of debt maturity in recent years and relatively stable financing sources. In addition, the measures under the NGEU/RRF, if fully implemented, could have a further positive impact on GDP growth in the coming years, and therefore help to mitigate debt sustainability risks.

([118])The S2 fiscal sustainability gap indicator measures the permanent fiscal effort (SPB adjustment) in 2024 that would be required to stabilise public debt over the long term. It is complemented by the S1 fiscal sustainability gap indicator, which measures the permanent fiscal effort required in 2024 to bring the debt-to-GDP ratio to 60% in the long term (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 pps. of GDP, 'medium risk' if it lies between 2 pps. and 6 pps. of GDP, and 'low risk' if the effort is negative or below 2 pps. of GDP. The overall long-term risk classification brings together the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 when it signals a higher risk than S2. See the 2022 Debt Sustainability Monitor for further details.

Table A21.1:**Debt sustainability analysis - Hungary**

Table 1. Baseline debt projections	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross debt ratio (% of GDP)	**79.3**	**76.6**	**73.3**	**70.7**	**71.1**	**71.0**	**70.9**	**70.6**	**70.6**	**70.7**	**70.9**	**71.3**	**71.8**	**72.5**
Changes in the ratio	13.9	-2.7	-3.3	-2.6	0.4	-0.1	-0.1	-0.3	0.0	0.1	0.2	0.4	0.5	0.7
of which														
Primary deficit	5.2	4.9	3.5	0.1	0.1	-0.2	-0.5	-0.7	-0.8	-0.8	-0.8	-0.7	-0.6	-0.5
Snowball effect	1.3	-7.5	-10.2	-5.0	0.0	0.1	0.3	0.5	0.8	0.9	1.0	1.1	1.1	1.2
Stock-flow adjustments	7.4	0.0	3.4	2.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	26.9	17.1	15.7	15.1	13.6	13.2	13.2	13.1	13.3	13.5	13.7	14.0	14.3	14.6

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2023-2027

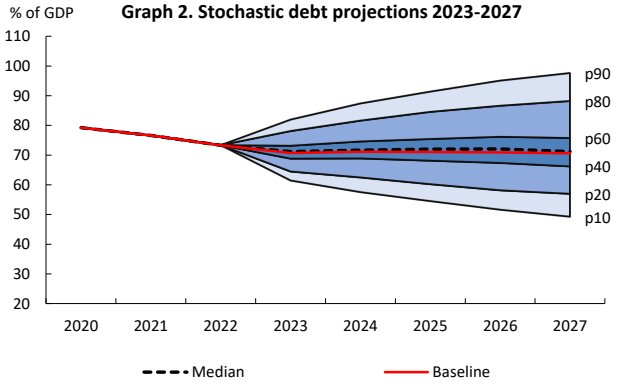


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	**S2**
Overall index (pps. of GDP)		**2.8**	**4.5**
of which			
Initial budgetary position		0.3	0.1
Debt requirement		0.2	
Ageing costs		2.3	4.4
of which	*Pensions*	1.6	3.2
	Health care	0.5	0.6
	Long-term care	0.3	0.5
	Others	0.0	0.1

Source: Commission services.

Table A21.2:**Heat map of fiscal sustainability risks - Hungary**

Short term	**Medium term - Debt sustainability analysis (DSA)**								**Long term**		
Overall (S0)	**Overall**		**Deterministic scenarios**					**Stochastic projections**	**S2**	**S1**	**Overall** (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	**HIGH**	Overall	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**
		Debt level (2033), % GDP	72.5	76.4	96.7	79.2	73.2				
		Debt peak year	2022	2033	2033	2033	2022				
		Fiscal consolidation space	44%	50%	69%	44%	44%				
		Probability of debt ratio exceeding in 2027 its 2022 level						46%			
		Difference between 90th and 10th percentiles (pps. GDP)						48.4			

(1) *Debt level* in 2033. 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 consolidtation 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 2027 its 2022 level*. Green: low probability. Yellow: intermediate. Red: high (also reflecting the initial debt level). (5) the *difference between the 90th and 10th percentiles* measures uncertainty, based on the debt distribution under 2000 different shocks. Green, yellow and red cells indicate increasing uncertainty.

Source: Commission services.

The Macroeconomic Imbalance Procedure matrix presents the main elements of the in-depth review undertaken for Hungary ([119]). Hungary was selected for an in-depth review in the 2023 Alert Mechanism Report. This in-depth review on the prevention and correction of macroeconomic imbalances presents the main findings on the gravity and evolution of the challenges identified, as well as policy responses and potential policy needs. Findings cover all areas of vulnerability assessed in the in-depth review.

Hungary is facing vulnerabilities relating to its external and government financing needs, compounded by the impact of high inflation. The current account deficit widened to 8.2% of GDP in 2022, mostly reflecting Hungary's large reliance on energy imports. Inflation rose to 15.3% in 2022 and in Q1 2023 it exceeded 25%. Wage and ULC growth had also been very strong in recent years, although labour tax cuts and nominal currency depreciation mitigated its impact on export competitiveness. House prices have doubled over the last five years. Although the government debt-to-GDP ratio decreased in 2022 to 73.3%, it was still eight percentage points higher than in 2019. Large government deficits account for much of the external borrowing needs. Sovereign borrowing costs and the interest burden have increased since 2021. At the same time, government gross financing needs remain high.

Going forward, while some of the identified vulnerabilities could ease, substantial risks and uncertainties remain. Lower energy prices and the retrenchment of domestic demand are projected to narrow the current account deficit in 2023-2024, which nonetheless is expected to remain substantial. Although inflation is set to rise further in 2023 as a whole, following the phase-out of price caps on energy and food, the stabilisation of the currency and weaker consumption are expected to reduce inflation substantially in 2024. The housing market has begun to cool in late 2022 and the pace of house price growth eased recently. The decreasing government deficit and high nominal GDP growth are set to support the reduction of government debt in 2023, due to high inflation. A key concern is whether inflation, which has not visibly moderated yet, will remain elevated for an extended period, exerting further pressure on costs and competitiveness, and keeping government financing costs elevated. Unaddressed vulnerabilities diminish Hungary's resilience to possible further shocks.

Policy inconsistencies have exacerbated vulnerabilities whereas a consistent policy mix, underpinned by a strong institutional policy framework, is instrumental to strengthen stability and anchor expectations. Monetary and fiscal policy tightened, but the composition of the fiscal response remained conducive to inflation and the build-up of imbalances, by creating distortions that prevented the adjustment of the economy to a changing world economic structure, rising interest rates and higher energy prices. Policies impeded efforts to reduce energy import dependence and weakened the monetary transmission mechanism. These included, inter alia, untargeted measures to protect households' purchasing power, financed by indirect taxes burdening companies and the financial sector, price and interest rate caps, and untargeted and fiscally costly housing subsidy schemes. Policies contributed to house price growth through untargeted subsidies, frequently changing regulations and cost pressures due to high public investment. All those policies have also had a material impact on external indebtedness and fiscal sustainability. Export promotion policies remain focused on attracting cost-sensitive and resource-intensive assembly activities, in which Hungary is losing its comparative advantage due to skills shortages and higher energy prices.

Based on this assessment, the Commission considered in its communication European Semester – 2023 Spring Package (COM(2023) 600 final) that Hungary experiences imbalances.

([119]) European Commission (2023) In-Depth Review for Hungary, Commission staff working document (COM(2023) 639 final), in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances.

Table A22.1:**Assessment of macroeconomic imbalances matrix**

	Gravity of the challenge	Evolution and prospects	Policy response
	Unsustainable trends, vulnerabilities and associated risks		
External position	Hungary maintains a negative net international investment position (NIIP) of 46% of GDP in 2022, but the position excluding non-defaultable instruments (NENDI) was nearly balanced. The current account deficit widened from 0.8% of GDP in 2019 to 8.2% in 2022. From a sectoral perspective, this was mainly due to a higher government deficit.	The deterioration of the current account balance was driven by the strong domestic demand over a number of years and increasing energy import prices in 2022. Moderating energy commodity prices and the adjustment of domestic demand are projected to narrow the current account deficit below 4% in 2023 and 3% in 2024. In the baseline scenario the NIIP is expected to be stable in the medium to long term.	The government deficit has accounted for much of the large external borrowing needs of the country, and only partly driven by the policy responses to the pandemic and the energy crises. Policy needs remain to address the external sector vulnerabilities, by further reducing the budget deficit, and by reducing energy import demand that was incentivised by weakly targeted price caps and regulated prices.
House prices	Nominal house prices doubled over the last five years and valuation metrics indicate substantial overvaluation in 2022. Mortgage growth picked up since 2017 but household debt remained among the lowest at 19% of GDP in 2022. The supply of dwellings grew less than demand since 2013.	Nominal house prices fell by 2% quarter-on-quarter in Q4 2022, while the value of new mortgages halved compared to Q4 2021. The declining real income of households and high interest rates are set to ease overvaluation. High inflation and low household indebtedness are expected to prevent nominal house prices from falling substantially. Lending and construction are both expected to slow down.	Some policy needs remain in context of the sharp increase in house prices. Weakly targeted government grant, loan and tax schemes that have boosted house price growth in recent years largely remain in place. Construction costs rose amid labour and material shortages that were exacerbated by high public investment. Increasing costs and frequently changing regulations hindered investment in dwellings.
Government debt	The government debt-to-GDP ratio stood at 73.3% in 2022, 8 percentage points above the 2019 level. Since 2021 the debt ratio has been again on a decreasing path due to high nominal GDP growth and smaller deficits. The gross financing need of the government remained substantial at 15.7% of GDP in 2022. The shares of foreign currency and variable rate instruments within Hungary's public debt increased in 2022.	Government debt is projected to decrease further to 70.7% of GDP in 2023 while the deficit is projected to narrow from 6.2% in 2022 to 4.0% in 2023. A no-policy change forecast points to a rising deficit and debt ratios in 2024. Fiscal consolidation is complicated by a higher interest burden, demographic tailwinds and contingent liabilities including projected central bank losses. Gross financing needs are set to decrease somewhat in 2023. Rising yields increase the interest burden of government debt from 2.3% of GDP in 2021 to 4.3% in 2024.	Policy needs to ensure sustainable fiscal consolidation beyond 2023, when the sector-specific taxes that were introduced in 2022 are due to be phased out. Hungary's RRP envisages regular spending reviews and a pension reform which can enhance fiscal sustainability.
Prices, costs and compe-titiveness	Unit labour cost growth is high, at over 22% cumulatively over 2020-2022, and some 12% in 2022 alone. It contributed to the rise of inflation to 15.3% in 2022 along with commodity price increases, currency depreciation and indirect tax hikes. The real exchange rate depreciated in 2022 as high nominal wage and price increases were offset by nominal currency depreciation. Hungary's export market share at current prices rose by 1.2% in the five years up to 2022, a marked slowdown compared to earlier years. Hungary remains specialised in resource-intensive and cost-sensitive assembly activities of global value chains.	Inflation is projected to rise further in 2023 to 16.4%, but it is then expected to ease to 4% in 2024 due to the fading impact of past cost shocks and weaker consumption. High wage growth has recently been driven by the tight labour market and minimum wage hikes. Trade performance is expected to improve with the continued recovery of international tourism and new foreign direct investments in manufacturing.	Policy needs remain to achieve price stability and mitigate competitiveness pressures. Monetary and fiscal policies are tightening to address inflationary pressure. However, price and interest rate caps and subsidised loans provide untargeted support to aggregate demand which can hinder anti-inflationary efforts. In recent years the authorities encouraged high wage growth, among others through very large minimum wage hikes, and partly offset their impact on competitiveness by labour tax cuts and currency depreciation. Policies promote foreign direct investment by facilitating cost competitiveness through low taxes, state aid and flexible regulations, but they could not reduce the gap vis-à-vis the EU in factors of non-price competitiveness such as innovation, skills or the business environment.

Source: European Commission