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2022 Country Report - Hungary

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

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

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European
Commission

Hungary

2022 Country Report



ECONOMIC AND EMPLOYMENT SNAPSHOT

Hungary's economy has caught up significantly over the years

Since joining the EU in 2004, Hungary's GDP per person rose from around 63% of the EU average to 76% in 2021. Hungary's entry to the single market attracted large foreign investments, which brought capital and technology into the country. This boosted productivity growth and connected companies to global production networks. Hungary has also received significant EU funding, which supported economic development and raised the public investment ratio to one of the highest in the EU.

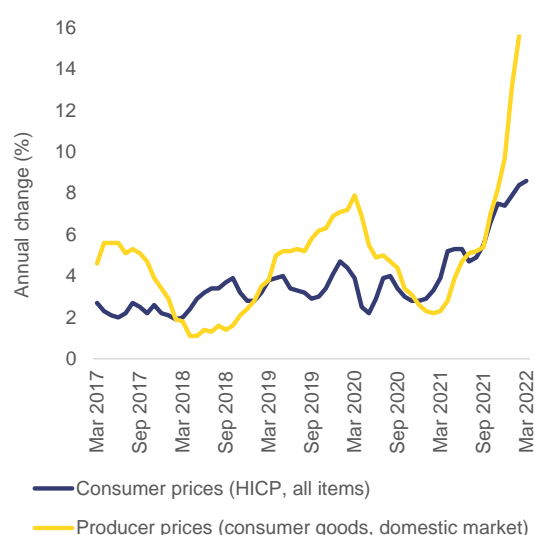
The Hungarian economy rebounded quickly from the 2020 recession caused by the COVID-19 pandemic. Real GDP fell by 4.5% in 2020 but bounced back by 7.1% in 2021, surpassing its pre-pandemic level. A strong policy stimulus was put in place to respond to the crisis, with measures such as a comprehensive moratorium on bank loan payments, public loan guarantees, grants and subsidised financing for private investment. Hungary was granted a maximum of EUR 651 million in temporary EU support through the Support to Mitigate Unemployment Risks in an Emergency (SURE) scheme (see also Annex 3).

The Russia's invasion of Ukraine is clouding the outlook...

Hungary's economy is vulnerable to Russia's invasion of Ukraine, taking place at its doorstep. Ukraine and Russia jointly account for 3.4% of Hungary's exports, one of the higher shares in the EU. The most exposed sectors are agriculture and pharmaceuticals, with over 10% of exports from these sectors

going to Ukraine or Russia. There are further vulnerabilities in inputs to production, because Ukraine is an important supplier of intermediate products for the electronics and metal industries in Hungary, while oil and gas from Russia are key inputs for the energy, oil refining and chemical industries.

Graph 1.1: **Consumer and producer prices in Hungary**



Source: Eurostat

Economic growth is expected to stall while inflation is set to remain high.

Besides its impact on external trade, the war in Ukraine will also affect growth by reducing business confidence, raising financing costs and eroding consumers' purchasing power through higher inflation. Following the Russia's invasion of Ukraine, capital outflows from Hungary led to currency depreciation, while global energy and food prices soared. These trends are expected to raise inflation in Hungary to 9.0% in 2022. GDP growth is set to slow to 3.6% in 2022 and 2.6% in 2023. Higher commodity prices are also set to worsen the external balance, as Hungary's net energy imports amounted to 4.4% of its GDP

last year. The current account deficit is projected to reach 5.5% of GDP in 2022.

...and adding to pre-existing risks

Following a period of strong fiscal expansion, Hungary now plans to gradually cut its budget deficit and public debt.

The deficit reached 7.8% in 2020 and 6.8% in 2021, reflecting high expenditure in response to the pandemic, support provided to companies and elevated public investment. Hungary's public debt rose from 65.5% of GDP in 2019 to 79.6% in 2020 and 76.8% in 2021. The deficits are also set to remain high compared to the EU average and many regional peers both in 2022 and in 2023. The additional tax revenue generated by a strong economic recovery in 2021 has been largely spent, for example on reintroducing the 13th month pension, a one-off refund of income tax to families in early 2022 and cuts to employers' social security contributions. Some of these measures will continue to weigh on the budget in the longer term. The budgeting practices of recent years, in particular the use of large reserves that can be spent in good economic times with limited parliamentary or public scrutiny, have increased the pro-cyclical bias of fiscal policy and may result in spending on lower quality projects.

New spending pressures will stall government's deficit reduction plans.

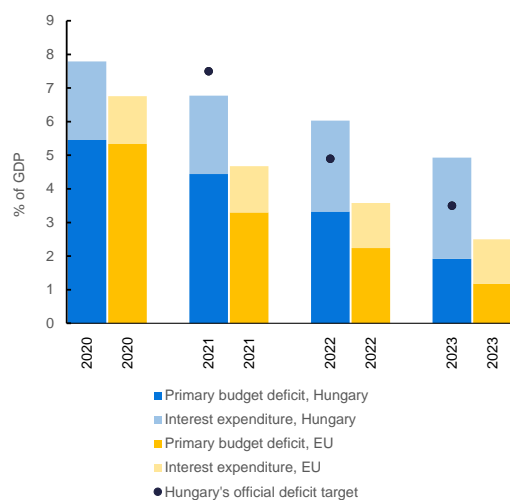
The uncertain geopolitical and macroeconomic context will pose a series of challenges to Hungary's fiscal policy in the coming years, which, absent policy adjustment, will make it challenging for the government to meet the 2022 deficit target set in the budget law. The state will likely have to step in to cover the expected large losses of mostly state-owned utility companies, which are currently bearing most of the cost of rising energy prices. Further spending pressures are related to the cost of caring for people fleeing Ukraine and public sector wages.

Additional EU funds can partly cover the higher spending needs.

Hungary will benefit from the exceptional flexibilities provided in

the framework of the CARE Regulation and additional pre-financing under REACT-EU to urgently address reception and integration needs for those fleeing Ukraine as a result of the Russia's invasion.

Graph 1.2: Budget deficit in Hungary and the EU



Source: European Commission

Global uncertainty and high inflation are also increasing Hungary's debt-servicing costs.

In recent years, the Hungarian debt management agency took advantage of favourable financing conditions to improve the structure of public debt. Maturities became longer, and the burden of interest decreased. However, a significant share of debt still needs to be refinanced in the coming years, in a more challenging macroeconomic environment. Hungary's debt servicing costs have already increased significantly due to higher inflation expectations, the end of government bond purchases by the central bank and more cautious global sentiment since the invasion of Ukraine. The yields of 10-year government bonds increased from around 2% at the beginning of 2021 to near 7.5% in the first half of May 2022. There are additional vulnerabilities related to Hungary's reliance on foreign currency funding, and the large volume of bonds sold to retail investors as savings products. Some of these bonds can be redeemed by retail investors at short notice with limited penalty. These bonds could create a large financing need for the government if

there is a sudden change in the confidence of retail investors.

Surging house prices point to risks in the housing market. House prices more than doubled between 2013 and 2020 in nominal terms, which was the largest increase in the EU. They have also continued to rise since the start of the pandemic. Government subsidy programmes boosted the demand for home ownership, while capacity shortages and rising costs limited new construction. The risk of house price overvaluation has increased, especially on the Budapest market, which is more attractive to international investors and tourism. Although household indebtedness is low in comparison to other EU members, it has risen more rapidly recently, and increasing interest rates might create difficulties for some borrowers. The European Systemic Risk Board (ESRB) considers macroprudential policies in this area are only partially appropriate and sufficient. It therefore, issued a warning to Hungary in February 2022, asking it to address these challenges (see Annex 16).

Productivity growth needs to increase

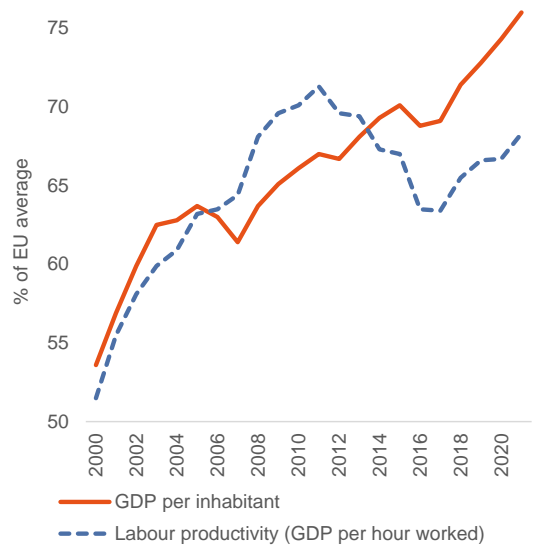
Although economic growth in Hungary was strong in the last decade, productivity growth stalled in this period.

Since 2010, GDP growth was mostly driven by the rising number of workers in the Hungarian economy. The employment rate in the 20-64 age group rose from 62% in 2010 to 78.8% in 2021, well above the EU average of 73.1%. However, employment growth already slowed down in 2019, and many firms found it difficult to hire skilled workers. The government aims to boost the employment rate further, to 85% by 2030. In contrast to employment, the labour productivity gap compared to the EU has not decreased since 2010. A Hungarian worker produces on average 32% less value added than an average worker in the EU, after accounting for the lower price level and longer working hours in Hungary.

A renewed focus on productivity is key to securing long-term growth. A priority for Hungary is to shift 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 hospitable business environment. Currently, Hungary is among the laggards of the European Innovation Scoreboard and its performance relative to the EU has decreased over time (see also Annex 9). Hungary also missed its Europe 2020 targets in the field of education: early school leaving has increased since 2010 and the share of tertiary graduates remains well below the EU average. While Hungary's government has promoted and subsidised export-oriented investments, several services that cater to the domestic market have experienced increasing state intervention. This increased intervention has been in the form of sector-specific taxes, tailor-made legislation and government decisions targeting business transactions. These interventions have reduced competition and hindered the growth of more efficient companies. Additional challenges for the business environment include weaknesses in the anti-corruption framework, judicial independence and quality of law-making. ⁽¹⁾

⁽¹⁾ See also the most recent OECD Economic Survey of Hungary, published in July 2021, which partly builds on the 2020 country report and the 2021 rule of law report of the European Commission.

Graph 1.3: **GDP per capita and labour productivity relative to the EU**



(1) At purchasing power standard

Source: Eurostat

Living standards in Hungary have improved in the past decade, but the benefits of growth were unevenly shared.

This is evidenced by the Social Scoreboard supporting the European Pillar of Social Rights (see Annex 12). Thanks to rising employment and higher wages, more than 1 million Hungarians have been lifted out of severe material deprivation since 2010.⁽²⁾ However, out of the 9.7 million inhabitants, around 1 million remain unable to afford essential items for an acceptable standard of living. The tax and benefit system is geared towards higher-income families with multiple children. These households tend to gain the most from Hungary’s flat personal income tax, the income tax allowance for children, housing subsidies and other forms of support. Meanwhile, in the past 10 years, the social safety net has weakened for families without stable employment and gaps in the social protection system remain for the unemployed and for workers in non-standard forms of employment. Social benefits, which are a major source of income for disadvantaged households, have not kept up with the cost of living for many years. The poorest Hungarians

⁽²⁾ People in severe material deprivation cannot afford at least 4 out of 9 predefined material items which are considered by most people to be desirable or even necessary to lead an adequate life.

therefore became even poorer. Poverty and social exclusion are also related to the large territorial differences within Hungary. Although all regions have been catching up with the rest of the EU since Hungary’s accession, some of them remain among the least-developed regions in the EU. In addition, there are large internal disparities within the regions themselves (see also Annex 15).

Hungary’s performance in achieving the United Nations Sustainable Development Goals (SDGs) is in line with that of other EU countries.

Although Hungary is improving on several SDG indicators related to environmental sustainability (SDGs 2, 6, 11, 12 and 13), the current status of these indicators remains below the EU average. In the area of fairness, Hungary performs well on SDG indicators related to growth, employment and poverty reduction (SDGs 1 and 8). It is also improving on health indicators (SDG 3), but it needs to make further progress in a number of areas related to education and gender equality (SDGs 4, 5 and 10). Hungary shows mixed performance on SDG indicators related to productivity (SDGs 8 and 9) and it needs to catch up on indicators related to adult learning (SDG 4) (see also Annex 1).

Hungary is at the early stage of the green and digital transitions

Moderate policy ambition is holding back Hungary’s green transition.

Although Hungary has limited domestic energy resources, policies have focused on attracting resource-intensive production tasks within global value chains, while the regulated energy prices limit households’ incentives for the efficient use of imported fossil fuels. Consequently, Hungary uses more energy and materials to produce a unit of income than the EU average. Contrary to the general trend among other EU countries, the resource productivity of the Hungarian economy did not improve over the past decade. The poor energy efficiency of housing and polluting residential heating methods are damaging air quality and posing risks to public health. Greenhouse gas emissions from transport have increased

strongly, growing by 46% between 2013 and 2019, well above the average increase of 8% in the EU during this period. Municipal waste recycling rates are low and have even decreased in recent years. In its national climate and energy plan Hungary set renewable energy and energy efficiency targets for 2030 that are considered to be of low ambition. Sectors that are likely to shrink or transform due to the green transition provide jobs for nearly 4% of all Hungarian workers, who could be in particular need of upskilling and reskilling. Labour shortages in the energy sector could hinder the transition to climate neutrality (see Annex 6).

Hungary is lagging behind in the digital transition. Hungary ranks 23rd out of 27 EU Member States in the Digital Economy and Society Index 2021 (see Annex 8). The development of digital and software skills and the integration of digital technologies into workplaces is crucial for the digital transformation of the economy and society. More public services could be offered online in Hungary, and with a stronger focus on users.

PRIORITIES AHEAD

Hungary will need to focus its efforts on key structural challenges to continue the catching-up process of recent decades. To secure long-term growth prospects, it will be crucial for Hungary to improve its business environment and institutions, address fiscal risks stemming from population ageing and foster the green transition. Hungary also needs to raise its level of ambition in policies targeting the labour market, healthcare, education and skills. Closing the gap in regional and within-region disparities would stimulate long-term sustainable and inclusive growth, boosting the economic potential of Hungary's less developed regions.

Population ageing and inequalities put pressure on Hungary's pension system

Decisive policy action is necessary to address the effect of population ageing on public finances. Until 2030, Hungary's working-age population is set to decrease by 4%, or about 250 000 people. Today, there are about three people of working age people for every older person in Hungary. By 2070, this ratio will fall to less than two people of working age for every older person. Population ageing is expected to result in a gradual increase in public spending on health care, long-term care and pensions. Hungary's projected long-term increase in pension expenditure is among the highest in the EU. It is forecast to rise from 8.3% of GDP in 2019 to above 12.4% in 2070, putting an additional burden on future taxpayers. According to the Commission's projections, Hungary's public debt will also start to rise in a decade if ageing-related spending remains unaddressed. Overall, the European benchmarks point to substantial challenges for Hungary in the long term (for a more detailed analysis of the

sustainability of Hungarian public debt, see Annex 19).

Policy measures in the last decade reversed some of the earlier pension reforms. In 2009 and 2012, several significant pension reforms improved the sustainability of the pension system, such as a gradual increase in the statutory retirement age from 62 to 65 by 2022, the phasing out of the 13th month of pension in 2009 and the removal of most early-retirement options in 2012. However, subsequent measures added to the sustainability challenge, such as a new early-retirement scheme for women with 40 years of service, and the recent reintroduction of the 13th-month pension. The latter measure increases the expenditure on pensions by around 0.9% of GDP annually (Ageing Report 2021).

Some changes that Hungary made to the pension system are not only costly but also increase inequality among pensioners. Changes to tax and pension systems since 2012 are projected to increase expenditure on the pensions of high-wage retirees. These pensions can reach high levels because there is no ceiling on pensionable income, and there is also no maximum pension⁽³⁾. The limit on pensionable income was abolished with the scrapping of the cap on pension contributions in 2013. Furthermore, the flat personal income tax introduced in 2011 boosted pensionable income mainly for high earners. At the other end of the spectrum, the minimum pension has remained nominally unchanged since 2008. This contributes to rising income inequalities among pensioners,

⁽³⁾ Pensionable income is the basis for calculating an individual's future pension benefits. It is calculated by deducting statutory tax and social security contributions from gross income over the retiree's career. Pensionable income in Hungary is calculated with a degressive formula: above a certain threshold, only a fixed fraction of the retiree's income is taken into account.

which might become a pressing social issue in the future.

The income gaps between older pensioners and those who retired more recently are also rising. In Hungary, pension benefits are based on average earnings during a career, which are revalued by the growth in net average wages up to one year before retirement. After retirement, pensions are indexed to consumer prices. In the last 6 years, pensions increased by 2.7% annually, while wages grew more quickly, on average by 9.6%. As a result, the nominal benefits of pensioners who retired in 2022 were more than 40% higher than the benefits of those who retired after the same length of career but 6 years earlier.

Hungary's long-term growth prospects depend on equipping people with the right skills

Education outcomes in Hungary are below the EU average, according to the Social Scoreboard supporting the European Pillar of Social Rights. Hungary missed its Europe 2020 targets for reducing early school leaving and increasing tertiary education attainment. Contrary to European trends, early school leaving increased in Hungary in the last decade to 12.0% in 2021, which is above the EU average of 9.7%. Early school leaving is higher in the least developed districts, and six times higher among the Roma than the non-Roma. The share of 25-34 year old people with a tertiary diploma has risen since 2010, but remains among the lowest in the EU. Participation in adult learning in Hungary is just over half of the EU average. Digital skills are also lacking, especially among poorer people. In the lowest two income quartiles, only 13% and 18% of Hungarians have at least basic digital skills. These are among the lowest percentages in the EU (see also Annex 13). Tackling these challenges is key for Hungary to contribute to reaching the 2030 EU headline target on skills.

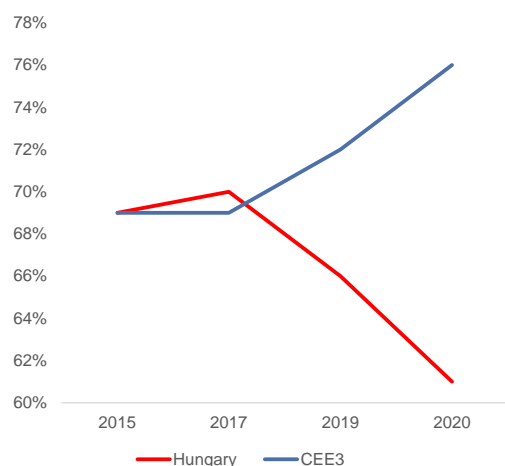
Hungary's school system could do more to support social mobility. Performance-based selection into different education tracks starts at the age of 10 in Hungary. This leads to the early separation of underachieving pupils from their high-achieving peers. Disadvantaged students have a low chance of entering the higher educational tracks⁽⁴⁾. The 2019 reform of vocational education and training (VET) removed the possibility for students in the three-year VET schools to obtain the upper-secondary-school leaving certificate in formal day-time education. Inequality in education reduces the possibilities for social mobility. Hungarian low-income families have the lowest chances in the EU of approaching the average income level in their country. The low levels of effectiveness and fairness in the school system are likely linked to the low level of curricular autonomy, the lack of socioeconomic diversity within schools and the low salaries for teachers.

The shortage of teachers is increasingly a problem. Aggregate indicators, such as the teacher-pupil ratio, do not signal acute shortages of teachers in Hungary. However, a more detailed analysis shows that shortages exist for specific subjects such as mathematics, science and foreign languages. Teacher shortages are also linked to the fragmentation of the school system as half of all primary and lower secondary schools (*általános iskola*) had fewer than 150 pupils in 2020/2021. Schools with a high proportion of disadvantaged pupils tend to suffer particularly from the lack of qualified teachers. More than half of graduates from teacher-education courses end up in other careers due to the high workload and low pay of teachers, especially at the beginning of their career. The number of teaching hours for Hungarian teachers is the highest in Europe, and in the absence of sufficient support staff, many teachers must perform non-teaching duties such as after-school care. Teacher salaries are the lowest among the EU countries that are OECD members and are equivalent to only 58-66% of the salaries of other tertiary

⁽⁴⁾ Out of the 116 680 higher education applicants in 2021, only 636 were disadvantaged.

graduates, depending on educational level. Moreover, the centralised management of schools leaves school heads with limited autonomy and tools to improve teaching quality.

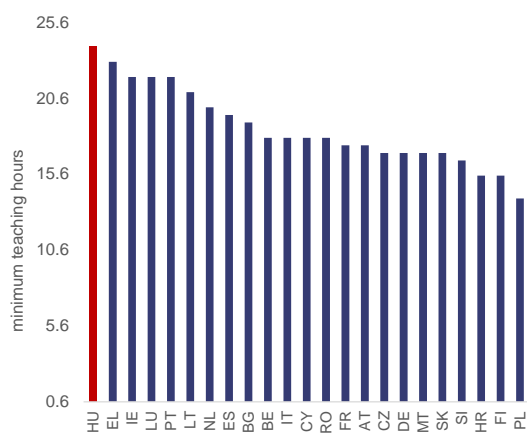
Graph 2.1: **Teacher salary relative to the earnings of workers with tertiary education**



(1) Teachers at lower secondary education
 (2) CEE3: CZ, PL, SK

Source: OECD

Graph 2.2: **Mandatory teaching hours of teachers**



Source: Eurydice

The number of tertiary graduates in Hungary falls short of the growing demand in the country for highly skilled workers. The number of entrants to tertiary education has been shrinking over the past decade, reflecting demographic trends, poor school outcomes and the reduction of state-funded places (see Annex 13). The number of

applicants to higher education fell from 102 thousand in 2011 to 69 thousand in 2021 and admissions decreased from 67 thousand to 51 thousand over this period. Since 2022 all workers below the age of 25 have been exempt from personal income tax, a measure which might increase employment but further reduce the pool of applicants to tertiary education. More than a third of bachelor's degree students do not graduate, with high dropout rates especially in IT, engineering and science programmes. The share of science and engineering graduates in the population aged 25-34 remains below the EU average and has even decreased since 2015, limiting Hungary's innovation capacity. The management and financing of most public universities in Hungary have been entrusted to private trust funds. Important decisions about university policy are made by the newly created boards of trustees, whose members are appointed by the government for life and the majority of the members have close ties with the government⁽⁵⁾. Meanwhile, university staff have become private instead of public employees, which reduces their protection against dismissal. Overall, these changes raise concerns over academic freedom and the quality of education being provided.

Refocusing health services on preventive care would improve health outcomes

Despite improvements, life expectancy in Hungary is still lower than the EU average. Although life expectancy at birth increased to 75.7 years in 2020, this remains almost 5 years below the EU average. Inequalities in life expectancy by gender and level of education are greater than in most other EU countries. For example, at the age of 30, Hungarian men with the lowest level of education can expect to live almost 11 years less than those with a high level of education.

⁽⁵⁾ Out of the total 106 members, 16 are linked to academia (e.g. former rectors, members of the Academy of Sciences), 36 are business managers, and 54 are members of the government or the governing political party.

There is a need to focus more on preventive care services. Hungary's mortality rates from preventable causes are among the highest in the EU, partly reflecting behavioural risk factors such as smoking, alcohol-use disorder or unhealthy diets. Preventive healthcare has not kept up with needs over the years. The share of health spending allocated to preventive care declined between 2010 and 2019, with negative results for the health of Hungarians. For example, rates of cancer screening fell during this period, contrary to the general trend on most other EU countries. In 2019, five national health programmes were launched, providing additional funding for public health and preventive health services. However, the pandemic interrupted screening activities several times, so the results of these programmes remain to be seen.

Strengthening primary care is key to improving the effectiveness and equity of access to health care. General practitioners (GPs) formally act as 'gatekeepers' to higher levels of care from specialist doctors. However, because they can provide only a limited range of specialist treatments, they generate a high number of referrals to specialists and hospitals. There are large disparities in access to primary care in Hungary, because vacant GP practices are concentrated in poorer areas. Recent reforms have encouraged GPs to cooperate more with each other, which could make primary care more efficient. The government also plans to allow GPs to provide more specialist treatments if they have the necessary qualifications to do so.

The hospital network is fragmented and has many hospital beds (see Annex 14). Patients in Hungary spend the longest time in hospitals of any country in the EU, because the take-up of day-surgery procedures has remained low in comparison with the rest of the EU. An outdated hospital-payment system, together with low decision-making autonomy for healthcare institutions, has repeatedly led to the accumulation of debt by hospitals. This has led to additional unplanned spending in the budget. To improve the cost-effectiveness of inpatient care services and alleviate

structural debt accumulation by hospitals a revision of the Diagnosis-Related Group-based payment system is underway. In 2020, the reform of the hospital network also started by centralising several care services and administrative functions at county level.

Hungary has taken significant measures to end gratuity payments and address the shortage of doctors. Hungary's healthcare system has experienced workforce shortages for many years, largely due to low wages. Shortages of health care professionals are more pronounced in certain professions, such as nursing, and in less populated and more disadvantaged areas. In 2021, a new public-sector employment contract was introduced for doctors, which provides them with an average 200% pay rise in 2021-2023. In return, they are explicitly prohibited from accepting informal gratuity payments, and they can only take second jobs with special permission either in private health care or in the public sector.

Labour market institutions and the social safety net could better support fairness and growth

Hungary's labour market is in a good shape overall, but significant challenges remain. These challenges include addressing the low employment rate of women with small children and of early retirement age, and of disadvantaged groups. Mothers with young children tend to stay out of work for a long time, partly due to the scarcity of childcare places. In 2019, only 17% of children below the age of 3 attended formal childcare, which is less than half of the EU average⁽⁶⁾. The number of childcare places is gradually increasing thanks to dedicated programmes, but these institutions also face staff

⁽⁶⁾ This indicator decreased to 10.5% in 2020. However, this change might be a temporary consequence of the COVID-19 pandemic, which forced many childcare institutions to close temporarily, and might have also led parents to keep children at home out of caution. National data for 2021 show a recovery in childcare enrolment, above the 2019 level.

shortages. There is significant room to increase the employment rate of certain disadvantaged groups, such as the low-skilled, the long-term unemployed, people with disabilities, and Roma. Joblessness is concentrated in Hungary's less developed regions and in rural areas. These disadvantaged groups could be better helped by equipping them with skills and actively helping them to find jobs. Assistance during the job search is limited in Hungary, and only half of the registered unemployed receive financial benefits. The duration of unemployment benefits is among the shortest in the EU at only 3 months, while people registered as unemployed need on average 16 months to find a job. Paying unemployment benefits for a longer time would allow these people to improve their skills and look for jobs that are more suited to their skills and where they could thus work more productively. By tackling these challenges, Hungary could contribute to reaching the 2030 EU headline target on employment.

The risk of poverty has decreased markedly in Hungary, but many people are still unable to afford basic necessities. Material and social deprivation rates in Hungary remain among the highest in the EU, especially for children. Poverty and social exclusion is concentrated in specific groups and territories. Based on national data, poverty rates are 3-4 times higher for Roma, due in particular to regional disparities, and their more limited access to the labour market and quality public services.

Over the last decade, the social safety net has weakened for Hungarian families without stable employment. Although the median income of poor households was 16.7% below the at-risk-of-poverty threshold in 2017, this "poverty gap" widened to 27.9% in 2020 ^(?). The tax system disproportionately burdens lower-paid workers through a high marginal income tax rate and high consumption taxes. Low-income families are also less likely to benefit from the income tax

(?) The threshold is set at 60% of the national median income. Anyone with income below this level is considered to be at risk of poverty.

allowance after their children. The major sources of income for low-income households include the salaries paid in the public works scheme, the minimum income benefit and the family allowance. These major sources of income have not kept up with the cost of living in the last decade. Gaps in social protection remain for unemployed people and workers in non-standard forms of employment. Regulated prices for residential energy have remained unchanged since 2014, thus partly shielding households from recent commodity price increases. However, this support is not targeted towards the poor, and it does not help those, mainly rural households with low income who heat their homes with solid fuels. Every year, Hungarian municipalities hand out some free firewood or brown coal to around 180 thousand households. Rising house prices pose further challenge to low-income families. They have difficulty accessing public housing support schemes, because these require applicants to have a regular work history and no unpaid public dues such as utility bills. Meanwhile, social housing has become scarce and has often run-down. Tackling these challenges is key for Hungary to contribute to reaching the 2030 EU headline target on poverty reduction.

Productivity growth in Hungary would benefit from more competitive markets

Hungarian companies are generally less productive than the EU average, with smaller firms at a particular disadvantage. This is partly because Hungarian businesses are less likely to innovate or to make use of digital technologies than their European peers. Only a third of small and medium-sized enterprises use at least three digital technologies, compared with a 55% average for the EU ⁽⁸⁾. The adoption of advanced digital technologies such as big data, artificial intelligence and cloud

⁽⁸⁾ The Eurostat survey on ICT usage and eCommerce in Enterprises lists 12 digital technologies, from basic ones such as having a website, to advanced ones such as cloud computing. See also <https://bit.ly/36vfhFw>

computing is particularly low. The cooperation between academia and business has not improved over the years and remains limited to big firms.

Barriers to competition hinder productivity growth, especially in services. Economic research using company-level data shows that Hungary's productivity slowdown in the 2010s was largely due to the slower reallocation of resources towards more efficient firms ⁽⁹⁾. The decreasing dynamism of the service sector is also reflected in the falling number of newly created companies. Competition in the Hungarian economy is hampered in several ways: by deterring the entry of new competitors, by obstructing the growth of more productive firms, and by keeping the least efficient companies in the market for too long.

Restrictions on many occupations can discourage would-be entrepreneurs. Special permits or qualifications are required to practice around 400 occupations in Hungary. This is the one of the highest numbers in the EU even though several restrictions have already been eased in recent years. These requirements often serve the public interest, for example by setting minimum quality or safety standards. However, they also exist for occupations such as waiters or property managers, where the need for such standards is less obvious. For other occupations, such as cooks or confectioners, safety standards already apply to their products or workplace, making the qualification requirements redundant. Excessive restrictions might harm productivity by hindering the entry and growth of more efficient businesses and by slowing down the flow of workers across sectors.

Regulations and taxes might prevent businesses from growing, especially in retail and utilities. The construction of retail establishments above 400 m² is prohibited in Hungary, but exemptions can be given by the authorities. The criteria for these exemptions

are not transparent and there is no scope for their judicial review. Some sectoral taxes can also discourage the growth of firms. For example, the tax on the retail sector, that was introduced in 2020, disproportionately burdens larger companies. Both the regulation on shop floor area and the retail tax can hinder the growth of more efficient retailers. The utility tax has been levied since 2013 on the length of the physical network owned by utility companies. This too can discourage firms from investing. Since 2012, telecom companies have also been burdened by a tax on phone calls and text messages, which contributes to the high price of mobile tariff bundles in comparison with the rest of the EU.

State interventions in business transactions in Hungary frequently disregard their effect on competition. The criterion of public interest can play a role in merger assessment in many Member States. However, Hungarian rules are unique in allowing the government to exempt transactions from merger control so that such an examination never takes place. This exemption deprives policymakers and the public from understanding the economic implications of these decisions. The criteria for these exemptions are not laid out transparently, and no formal procedure exists to contest them. There have been more than 30 such interventions since 2014. These may have affected competition in various sectors such as energy utilities, banking, textbook publishing, fertility clinics, the cash-in-transit market, the tobacco trade, telecommunications and the media. Many of these are sectors that are already not characterised by vibrant competition. In other sectors, state intervention hampers competition directly. These other sectors include the training of driving examiners, waste management and collection and mobile payments. The provision of several services in Hungary is entrusted to state-owned or private firms, specifically created for these purposes, which operate without competition.

Slow and costly insolvency procedures might hinder the restructuring of failing businesses. The OECD ranked the Hungarian insolvency regime as among the most

⁽⁹⁾ Muraközy, B., Bisztray, M. and Reizer, B. (2019). 'Productivity differences in Hungary and mechanisms of TFP growth slowdown'. Available at <https://bit.ly/3tAr265>

stringent in the OECD, especially due to the length and cost of insolvency procedures. This might also explain why the share of non-performing loans in Hungary's banking sector remains above the EU average. Failed entrepreneurs need to wait for up to 7 years to be discharged from their pre-bankruptcy debt, which makes it difficult for them to start again. Consequently, surveys show that the fear of failure is a significant barrier to entrepreneurship. On the positive side, the reform of the insolvency framework has already started. For example, since 2020 a simple majority of creditors is sufficient to approve a rescue plan for a company instead of the previously required 67%. The procedures were also simplified and digital communication channels were allowed. The European Commission and the European Bank for Reconstruction and Development have provided technical support on this topic since 2019, and the Ministry of Justice already prepared a reform concept, which is yet to be approved by the government.

Hungary's procurement market remains vulnerable to anti-competitive practices and corruption. The percentage of public contracts awarded in procedures where there was just one bidder stagnated at around 40% in 2018-2020, which was one of the highest percentages in the EU. The authorities improved their supervision of the regularity of public procurement in response to the findings of the European Commission's successive audits in the field of EU funds management. These audits carried out in 2014, 2015 and 2017 identified serious, systemic deficiencies and irregularities, in particular in the use of framework agreements. Whether all of the previously identified deficiencies have been fully addressed remains to be seen in practice. In 2021, new risks also emerged with the apparent exclusion of 'public interest trusts', and the universities managed by them, from public-procurement rules. 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%, although without a fixed timeline. The government also committed to developing a comprehensive performance-measurement methodology and to exploring measures to address some of the problems in

the public-procurement sector, including by introducing special measures for sectors and contracting authorities most affected by single-bid procurements in order to improve competition.

Stronger institutions could support business dynamism in Hungary

Several elements of the Hungarian business environment have improved in the last decade. Hungary has maintained macroeconomic stability in this period, and companies have gained better access to financing. Hungarian companies can also benefit from the lowest corporate tax rate in the EU and the government provides significant support for companies' investment projects. The tax burden on labour decreased significantly and the employment protection regulation allowed firms to manage their staffing levels more flexibly. Digitalisation has also made tax administration more efficient, although there is room for improvement in other areas of public administration, for example by providing more services online and improving the user experience. These features made Hungary an attractive location for the cost-sensitive production processes of global value chains (see also Annex 10).

Hungary's tax system is favourable for companies, but it might also facilitate aggressive tax planning. Even if Hungary is implementing the recent European and internationally agreed initiatives to curb aggressive tax planning, companies may still exploit the tax system to avoid paying their fair share of taxes in the EU. Hungary is one of only two Member States that do not apply any withholding tax on royalty, dividend or interest payments leaving the EU. Royalty and interest payments to non-EU countries are not taxable in Hungary, even though they can be deducted from a company's tax base, albeit with limitations. The risk of aggressive tax planning is also visible in the high and rising stock of foreign direct investment from offshore financial centres. In 2020, these amounted to 30% of Hungary's GDP, or nearly 15% of all foreign investment in Hungary, which are

among the highest levels in the EU. The outflows of royalty, interest and dividend payments to offshore financial centres are also well above the EU average.

Challenges remain in the area of corruption and judicial independence.

The quality of institutions matters for economic development, especially for a country like Hungary, which needs to boost productivity and move its growth model from simple assembly tasks to higher value-added activities within global value chains. The European Commission's 2021 report on rule of law found weaknesses in Hungary related to the fight against corruption and judicial independence. Concerns over judicial independence are centred on the balance of powers between the President of the National Office for the Judiciary and the National Judicial Council, the functioning of the Supreme Court, the role of the Constitutional Court and the transparency of the case allocation scheme. In December 2021, the government postponed the implementation of most measures in its anti-corruption strategy for 2020-22. Had they been implemented, these measures would have helped to more effectively detect and prosecute of corruption in public institutions and state-owned enterprises. Access to public information, which is essential for the independent oversight of decision-making and anti-corruption framework, was made more difficult by special rules introduced by Hungary during the state of danger ⁽¹⁰⁾ ⁽¹¹⁾.

Low transparency of the policy-making process may affect the business environment.

Hungary scores low among EU Member States on social dialogue, stakeholder engagement in developing primary law, consultation with civil society, and the use of evidence-based instruments to assess the

impact of a draft legislation. National rules on the obligatory public consultation of draft legal acts and their impact assessments have been systematically disregarded. The number of laws subject to consultation has significantly declined in recent years and was close to zero in the last three years.

Ambitious policies could support Hungary's green transition and reduce dependence on Russian fossil fuels

Hungary's energy sector depends strongly on Russia for fossil fuels and investment.

Oil and gas account for two-thirds of Hungary's energy mix. Hungary's only oil refinery mainly uses oil from Russia, but some 30% of its feedstock comes from alternative sources, mainly through the Omisalj oil terminal in Croatia. For gas, Russian imports account for as much as three quarters of domestic consumption, with the rest covered by domestic production ⁽¹²⁾. The nuclear energy sector, which accounted for 46% of electricity generation in 2020, also depends on Russian technology, nuclear fuel and funding.

Regional gas interconnections could allow limited diversification of imports.

Due to its geographical location Hungary relies on Russian gas import and has no direct access to overseas liquefied natural gas. Therefore, Hungary maintains a large gas storage capacity of 6.5 billion cubic metres (bcm) or 60% of annual consumption. However, these were largely exhausted by spring 2022. Hungary signed a long-term contract in 2021 to continue purchasing Russian gas. Existing pipelines to Hungary's neighbours create only

⁽¹⁰⁾ The state of danger due to the pandemic has been in place since 11 March 2020, with an interruption between July and November 2020. It is set to expire 1 June 2022.

⁽¹¹⁾ The Commission sent a notification letter to Hungary on 27 April pursuant to Article 6(1) of Regulation (EU, Euratom) 2020/2092 of the European Parliament and of the Council, of 16 December 2020, on a general regime of conditionality for the protection of the Union budget.

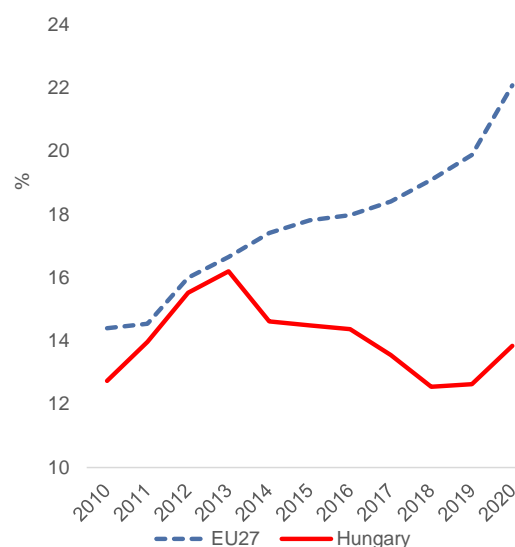
⁽¹²⁾ Eurostat. In 2020, Hungary's crude oil and natural gas imports from Russia amounted to 61% and 95% of total imports of crude oil and natural gas respectively. However, Hungary was a significant exporter of refined oil products and natural gas to neighbouring countries. Accounting for these energy exports, Hungary's import dependency on Russia was 17% of gross inland consumption for oil and 76% for gas. These estimates assume that domestic production and imports from third countries are used to cover domestic consumption.

limited possibility to import from other sources.

There is room to increase the share of renewable energy. Hungary's share of renewable sources in gross final energy consumption is among the lowest in the EU at 13.9% and the national energy and climate plan aims to increase this to only 21% by 2030. This objective was not considered ambitious enough by the European Commission, but the government now plans to raise it to 23-25%. Currently the greatest share of electricity in Hungary is generated from nuclear sources, followed by fossil fuels, and then by renewable energy sources. Hungary aims to increase the share of carbon-free sources in electricity generation from 61% in 2020 to 90% by 2030. In addition to nuclear energy, Hungary intends to rely more on solar energy while the potential of wind and geothermal energy remains underutilised also due to administrative barriers. For example, new wind turbines are not allowed within 12 km of populated areas, which makes it practically impossible to install them anywhere in Hungary. Hungary's electricity grid requires additional investment to accommodate the increase of renewable energy sources. In addition, permitting procedures for building plants that use renewable energy sources could be simplified. ⁽¹³⁾

⁽¹³⁾ For further details, see: Eclareon (2022): Barriers and Best Practices for Wind and Solar Electricity in the EU27 and UK, Final Report, March 2022. Available at <https://bit.ly/3wHfMT>

Graph 2.3: **Share of renewable energy in Hungary relative to the EU**



Source: Eurostat

There remains great potential for energy saving in Hungary by renovating the country's building stock. Hungary did not reach its 2020 targets for reducing primary and final energy consumption. There is especially large room for improvement in the energy efficiency of residential housing. The renovation of housing would also meet social needs, as nearly a quarter of the population lives in dwellings that suffer from leaking roofs, dampness or rot. Existing financial incentives for energy efficiency upgrades and greener heating systems appear insufficient to trigger more widespread take-up of these upgrades by Hungarian home owners. New dwellings can benefit from a green mortgage programme of the central bank which was extended in spring 2022 to accommodate strong demand. Home renovations are supported by a temporary subsidy programme until the end of 2022, which finances up to half of the cost of refurbishment. However, this scheme does not require households to achieve any energy saving and excludes in practice the most vulnerable families, who cannot support even half of the costs of a typical renovation. Moreover, the uniformly low level of regulated energy prices, regardless of household income or consumption level, does not create incentives for energy saving ⁽¹⁴⁾.

⁽¹⁴⁾ Evidence for the significant reaction of residential gas consumption to prices in Hungary is presented in

Meanwhile, the application of stricter environmental standards for new housing was postponed by 18 months, until 1 July 2022.

Transport could also contribute to fossil fuel savings. Over the last five years, greenhouse gas emissions in transport have increased strongly and the sector is rapidly becoming the largest emitting one. The high level of emissions is partly due to road congestion, in particular in cities. The take up of electric vehicles and the number of charging points are below the EU average (see more details in Annex 5).

Progress towards a circular economy is at an early stage. Hungary uses more materials to produce a unit of income than most other EU countries. Although waste generation is modest and commensurate with Hungary's income level, only 33% of municipal waste is recycled. This is considerably less than the 2025 target of 55%. Conversely, 50% of all municipal waste ends up in landfills. Waste management was reorganised by the government in 2016. The changes limited competition in the sector, which had a side effect of reducing efficiency and recycling rates. In 2021, a new legislation limited competition further by creating a monopolistic market. Hungary has recently started to develop a national circular economy strategy and a related action plan.

Water management remains a concern. Hungary's water-supply and sanitation system are still not fully compliant with the Drinking Water Directive, and water affordability remains an issue for the poor. A large share of the water supply network is in poor state. Because of leaks, a quarter of the water entering the system generates no revenues. Regulated tariffs do not cover the maintenance costs of many water and wastewater companies. The utility tax, levied on companies' pipelines, poses another barrier to investment. Hungary's water bodies are exposed to pressures from human intervention. Plans to substantially expand crop irrigation in Hungary raise concerns about

harms to water quantity, water quality and biodiversity. This is because climate change is expected to reduce flow levels in the country's river. In contrast, Hungary pays less attention to water retention, restoring natural hydrology, and adapting agricultural practices. Close to one quarter of Hungary's territory is exposed to floods, and the country's flood risk management plan does not sufficiently address this issue.

Századvég (2014): A háztartási energiahordozó átváltások társadalmi hatásvizsgálata (in Hungarian). Available at: <https://bit.ly/3NxY27d>

KEY FINDINGS

Hungary would benefit from measures in the following areas:

- Preserving macroeconomic stability by managing the risks of high energy prices and rising financing costs.
- Reforming the pension system to improve the long-term sustainability of public finances, while preserving adequacy in particular through addressing income inequalities.
- More integration of the most vulnerable groups in the labour market, in particular through upskilling, and extending the duration of unemployment benefits.
- Better adequacy of social assistance and equal access to essential services and adequate housing for all.
- Improved education outcomes and higher level of participation in quality mainstream education by disadvantaged groups, in particular Roma.
- Better access to quality preventive and primary care services.
- Reducing large territorial differences within Hungary, with particular attention to significant internal disparities within regions.
- Increasing investment on the digitalisation of businesses, green and digital skills, and research and innovation.
- More regulatory predictability and increased competition in services, including in public procurement.
- Reinforcing the anti-corruption framework, including by improving prosecutorial efforts and access to public information.
- Strengthening judicial independence.
- Improving the quality and transparency of the decision-making process through effective social dialogue and engagement with other stakeholders and through regular, appropriate impact assessments.
- Simplifying the tax system, while strengthening it against the risk of aggressive tax planning.
- Reducing overall reliance on fossil fuels by accelerating the deployment of renewables, in particular by streamlining the permitting procedures and upgrading the electricity infrastructure. Diversify imports of fossil fuels by strengthening interconnection with other countries.
- 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 on the electrification of transport.
- Promoting reform and investment on sustainable water and waste management and the circularity of the economy.

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

Although Hungary is improving on several SDG indicators related to environmental sustainability (SDGs 2, 6, 11, 12 and 13), it still needs to progress on others (SDGs 7 and 9). The current status of all these indicators remains below the EU average. Notably, the recycling rate of municipal waste only slightly increased from 32.2% in 2015 to 33.0% in 2020, while 'circular material use rate' improved from 5.8% in 2014 to 8.7% in 2020. However both measures are still below the EU average (47.8% for municipal recycling and 12.8% for circular material use). Although Hungary's 'primary energy consumption' is below the EU average, the share of renewable energy in total energy consumption, which decreased from 14.5% in 2015 to 13.9% in 2020, is far below the EU average (22.09% in 2020).

Energy productivity in the country only slightly increased between 2015 and 2020, leading to an increased gap with the EU average (from 4.4 EUR/kgoe in 2015 to 4.7 EUR/kgoe in 2020, compared to an EU improvement from 7.8 EUR/kgoe to 8.6 EUR/kgoe). The share of sustainable transport modes has declined in recent years, but still remains above the EU average (public transport kilometres travelled as a share of all transport kilometres fell to 28.4% in 2020, above the EU average of 17.2%).

In the area of fairness, Hungary performs very well in some SDG indicators related to growth, employment and poverty reduction (SDGs 1 and 8). There has also been some

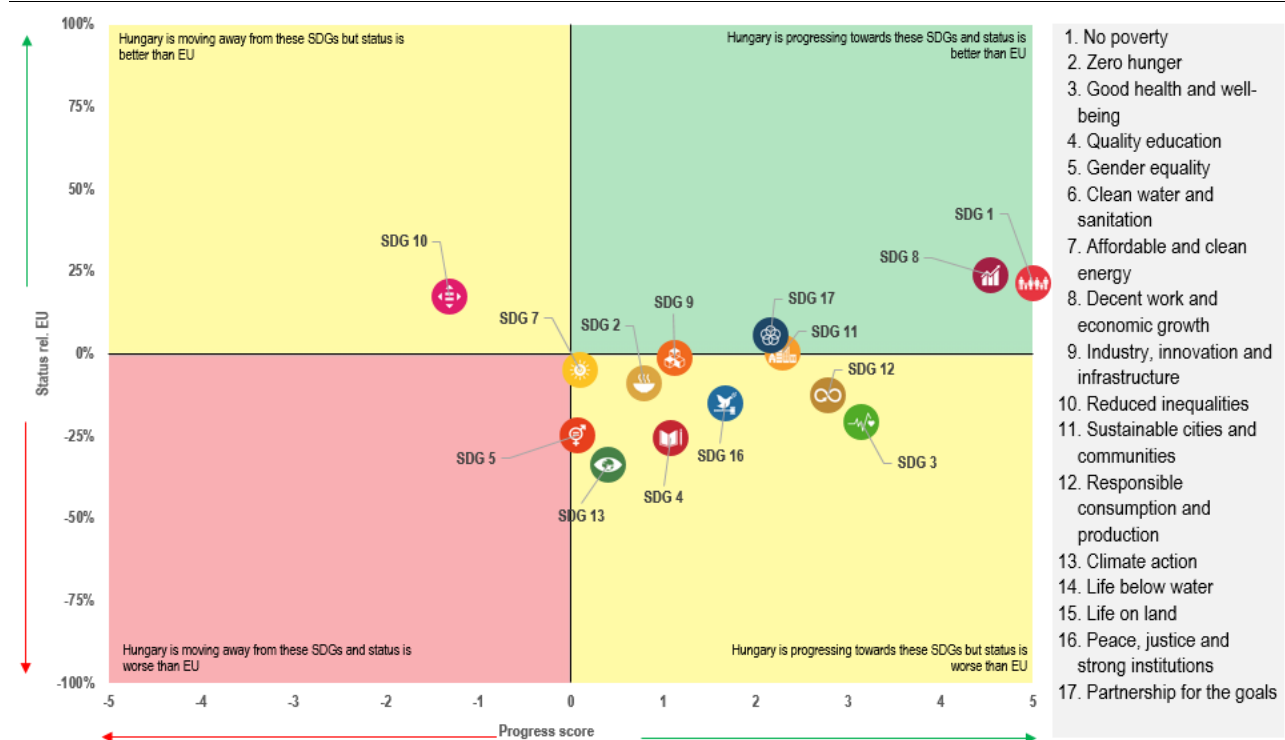
improvement in health indicators (SDG 3), but the country needs to catch up in a number of areas related to education and gender equality (SDGs 4, 5 and 10). Improvement has been particularly strong in the employment rate (from 73.7% in 2016 to 78.8% in 2021), the severe material and social deprivation rate (from 24.1% in 2015 to 10.7% in 2020) and the severe housing-deprivation rate (from 15.5% in 2015 to 7.6% in 2020). But despite these improvements, Hungary still scores significantly below than the EU average for the severe material and social deprivation rate (where the EU average is only 6.8%) and the severe housing-deprivation rate (where the EU average is 4.0%). Hungary also performs below the EU average in the area of

education (SDG 4), with high and increasing rates of early school leaving (12.0% in Hungary compared to 9.7% in the EU) and low and decreasing tertiary education attainment (32.9% in Hungary against 41.2% in the EU) in 2021. Similarly, Hungary performs below than the EU average in gender equality (SDG 5), with worsening gender employment gap and gender pay gap, and low participation of women in national parliaments, governments and senior management.

Hungary performs well on some of the SDG indicators related to productivity (SDGs 8 and 9), but still needs to catch up on others (such as SDG 4 on education, which plays a critical role in productivity). The share of Hungarian households with high-speed internet connections has moved towards the EU average of 59.3 % in 2020 which represents significant progress on this indicator since 2015. 48,6% of Hungary's households now have high-speed internet access compared to 21,5 % in 2015.. Hungary's gross domestic expenditure on R&D is well below the EU average (1.61% of GDP against 2,32% in the EU) and Hungary has not made significant progress on this area over time. Participation in adult learning and strengthening digital skills remain a challenge. In Hungary only 5.9% of adults participate in learning programmes, which is far below the EU average (10.8% in 2021). Only 49% of Hungarians possess at least basic digital skills, against an EU average of 54% in 2021.

Hungary performs well on SDG indicators related to *macroeconomic stability* (SDG 8), and is improving on other indicators (such as SDG 16 on access to justice and trust in institutions). Real GDP per capita in Hungary has been increasing over time, reaching EUR 13,660 in 2021 (up from EUR 11,500 in 2016), but it is still substantially below the EU average (EUR 27,810 in 2021), and economic convergence with the rest of the EU slowing down. The investment share of GDP has increased since 2015 and it above the EU average (26.8% in Hungary against 22.3% in the EU in 2020). Hungary also outperforms the EU average on employment-related indicators (SDG 8). The long term unemployment rate has fallen significantly since 2015 (from 2.3% in 2016 to 1.3% in 2020). However, Hungary is still below the EU average - and has a declining performance - on access to justice and trust in institutions (SDG 16).

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



For detailed datasets on the various SDGs see the annual ESTAT report 'Sustainable development in the European Union', <https://ec.europa.eu/eurostat/web/products-statistical-books/-/KS-03-21-096>; Extensive country specific data on the short-term progress of Member States can be found here: Key findings - Sustainable development indicators - Eurostat (europa.eu).

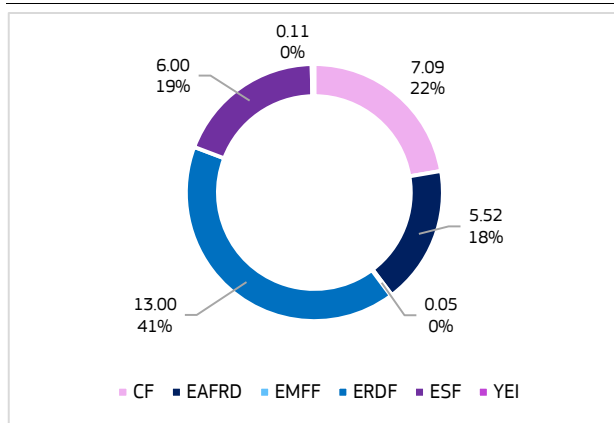
Source: Eurostat, latest update of 28 April 2022. Data mainly refer to 2015–2020 and 2016–2021.

The Recovery and Resilience Facility (RRF) is the centrepiece of the European Union's efforts to support the Union's recovery from the COVID-19 pandemic and strengthen resilience against future shocks. Hungary submitted its Recovery and Resilience Plan on 11 May 2021. The plan amounted to €7.17 billion in grants, or 4.9% of Hungary's GDP in 2019.

The Commission is continuing its assessment of the Hungarian plan and is working constructively with the Hungarian authorities to ensure it meets the criteria laid down in the Recovery and Resilience Facility Regulation.

The EU's budget of more than EUR 1.2 trillion for 2021-2027 is the investment lever supporting the implementation of EU priorities. Underpinned by an additional amount of about EUR 800 billion through Next Generation EU and its largest instrument, the RRF, it represents a significant firepower to support the recovery and sustainable growth.

Graph A3.1: **2014-2020 European and Structural Investment Funds - total budget by fund**



(1) bn EUR in current prices, % of total

Source: European Commission, Cohesion Open Data

In 2021-2027, EU cohesion policy funds⁽¹⁵⁾ will support long-term development objectives in Hungary by investing EUR 22.79 billion⁽¹⁶⁾ including EUR 261.1 million from the Just Transition Fund directed to alleviate the socio-economic impacts of the green transition in the most vulnerable regions. The 2021-2027 cohesion policy funds partnership agreements and programmes are designed to take into account the 2019-2020 country-specific recommendations and investment guidance provided under the European Semester, ensuring synergies and complementarities with other EU funding. In addition, Hungary will benefit from EUR 8.4 billion support for the 2023-27 period from the Common Agricultural Policy, which supports social, environmental, and economic sustainability and innovation in agriculture and rural areas, contributing to the European Green Deal, and ensuring long-term food security.

⁽¹⁵⁾ European Regional Development Fund (ERDF), European Social Fund+ (ESF+), Cohesion Fund (CF), Just Transition Fund (JTF), Interreg.

⁽¹⁶⁾ Current prices, source: [Cohesion Open Data](#)

In 2014-2020, the European Structural and Investment Funds (ESIF) for Hungary are set to have invested EUR 26.83 billion⁽¹⁷⁾ from the EU budget. The total investment including national financing will have amounted to EUR 31.77 billion (Graph 3.1), representing around 3.67% of Hungarian GDP for 2014-2020 and 49.30% of Hungary's public investment⁽¹⁸⁾. By 31 December 2021, 123% of the total was allocated to specific projects and 73% was reported as spent, leaving EUR 8.45 billion to be spent by the end of 2023⁽¹⁹⁾. Among the eleven objectives the most relevant ones for cohesion policy funding in Hungary are: (i) the competitiveness of SMEs (EUR 5.39 billion); (ii) sustainable and quality employment (EUR 4 billion); (iii) network infrastructure in transport and energy (EUR 3.9 billion); (iv) environmental protection and resource efficiency (EUR 3.7 billion); (v) the low-carbon economy (EUR 3 billion); (vi) social inclusion (EUR 2.97 billion); (vii) research and innovation (EUR 2.27 billion); (viii) education and vocational training, (EUR 2 billion); (ix) climate change adaptation (EUR 1.9 billion); (x) efficient public administration, crisis-repair and resilience; and (xi) information and communication technology. By the end of 2020, cohesion policy investments had: (i) supported 29 914 enterprises in Hungary (out of which 4 627 were supported through grants and 5 683 through non-grant aid); (ii) directly helped to create 19 653 jobs; (iii) helped to set up broadband access in 152 000 households; (iv) contributed to the construction of 158 km of new roads and to the reconstruction of 274 km of railway; (v) improved the health service for 7.8 million people and wastewater treatment for 73 000 people. Overall, Hungary allocated EUR 1.15 billion under the European Social Fund (ESF) to measures to help people find work or training, involving over 400 000 participants, of whom over 220 000 found a job.

⁽¹⁷⁾ ESIF includes the cohesion policy funds (ERDF, ESF, CF, Interreg) the European Agricultural Fund for Rural Development (EAFRD) and European Maritime and Fisheries Fund (EMFF). According to the 'N+3 rule', the funds committed for the years 2014-2020 must be spent by 2023 at the latest (by 2025 for EAFRD). Data source: [Cohesion Open Data](#) cut off date 31.12.2021 for ERDF, ESF+, CF, Interreg; cut-off date 31.12.2020 for EAFRD and EMFF.

⁽¹⁸⁾ Public investment is gross fixed capital formation plus capital transfers by the general government.

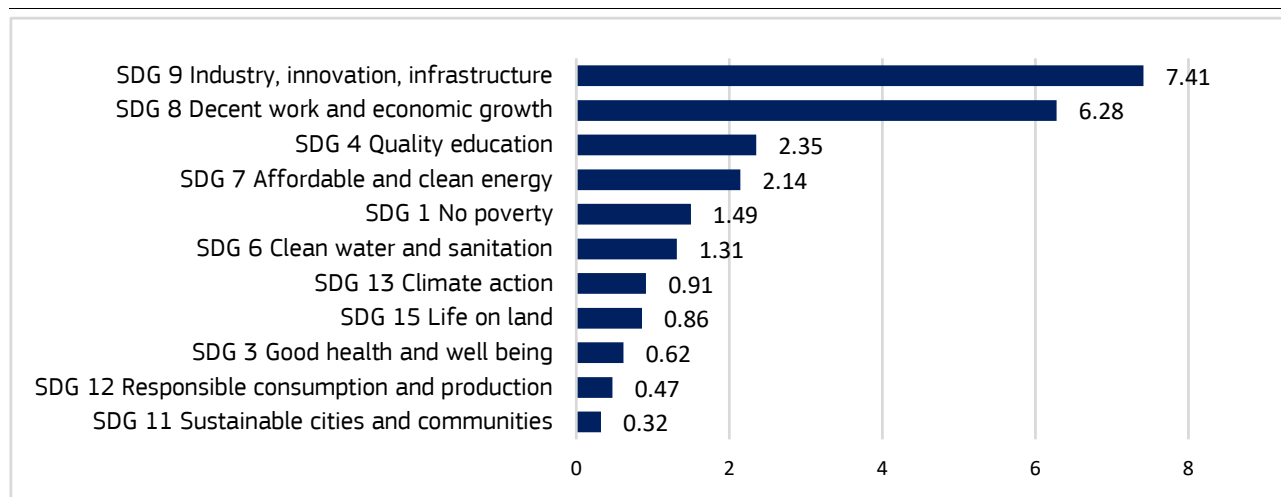
⁽¹⁹⁾ Including REACT-EU. ESIF data on <https://cohesiondata.ec.europa.eu/countries/HU>

Cohesion policy funds are already substantially contributing to the objectives of the Sustainable Development Goals. In Hungary, cohesion policy funds are supporting 11 of the 17 SDGs with up to 94% of the expenditure contributing to the attainment of the goals under these 11 SDGs.

REACT-EU, another fund under NextGenerationEU provided EUR 926 million of additional funding to 2014-2020 cohesion policy allocations for Hungary to ensure a balanced recovery, foster convergence and provide vital support to regions following the impact of the COVID-19 outbreak. REACT-EU provided support in Hungary through: (i) three operational programmes for safeguarding jobs through wage subsidies in the sectors impacted by the pandemic; (ii) promoting the economic recovery through loans to SMEs; (iii) improving the epidemiological situation through the purchase of EU-approved vaccines, including for children; and (iv) supporting the green transition through energy efficiency measures, green infrastructure and investment in renewable energy sources.

The Coronavirus Response Investment Initiative⁽²⁰⁾ provided the first EU emergency support to Hungary to help to deal with the COVID-19 pandemic. It introduced extraordinary flexibility enabling Hungary to re-allocate resources for support to enterprises (EUR 208 million) contributing for instance to the liquidity support to SMEs including via working capital loans, support to the food industry sector value chains which have been disrupted as a result of the crisis, supporting short time work schemes (ESF) and transition towards a greener economy (ERDF). The Coronavirus Response Investment Initiative also increased support to companies and vulnerable people located in the capital region of Budapest, the region of Hungary most affected by the impact of the COVID-19 crisis in 2020. Hungary also benefited from the temporary 100% EU financing of incurred measures in cohesion policy, with approximately EUR 797 million in 2021 through 100% co-financing.

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



Source: European Commission, DG REGIO

⁽²⁰⁾ Re-allocating ESIF resources according to Regulation (EU) 2020/460 of the European Parliament and of the Council of 30 March 2020, and Regulation (EU) 2020/558 of the European Parliament and of the Council of 23 April 2020.

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 measures. The Council granted financial assistance under SURE to Hungary in October 2020 and top-up support in January 2022 for a maximum of EUR 651 million, which was disbursed by 29 March 2022. SURE is estimated to have supported approximately 10% of workers and 5% of firms for at least one month in 2020, primarily in accommodation and food services, human health and social work activities, and other service activities. Hungary is estimated to have saved a total of EUR 0.09 billion on interest payments as a result of SURE's lower interest rates.

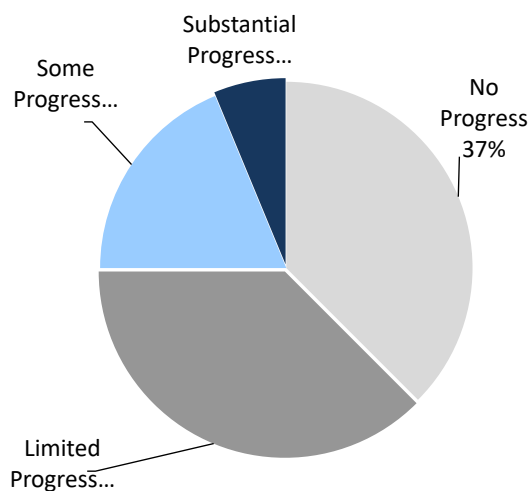
The Commission is engaged in providing tailor-made expertise via the Technical Support Instrument to support Hungary in designing and implementing growth-enhancing reforms. Since 2018, Hungary has received EU assistance through 34 technical support projects. Projects delivered in 2021 aimed at supporting Hungary in a variety of areas, including sustainable growth, fair taxation, digitalisation of public administration, healthcare, digital higher education and supervision of the financial sector. In particular, the support for improving the quality of digital teaching and learning is expected to lead to a more competitive and attractive higher education system. In 2022, new projects will start to support, among other things, piloting individual learning accounts, the implementation of the just transition.

Hungary also benefits also from **other EU programmes**, such as the **Connecting Europe Facility**, which allocated EU funding of EUR 1,1 billion to specific projects on strategic transport networks, and **Horizon 2020**, which allocated EU funding of EUR 371.4 million.

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

The Commission assessed the 2019-2021 country-specific recommendations (CSRs) ⁽²¹⁾ addressed to Hungary in the context of the European Semester. The assessment takes into account the policy action taken by Hungary to date ⁽²²⁾. Overall 25% of the CSRs focusing on structural issues in 2019 and 2020 have recorded at least “some progress”, while 75% recorded “limited” or “no progress” (see Graph A4.1).

Graph A4.1: **Hungary's progress on the 2019-2020 CSRs (2022 European Semester cycle)**



Source: European Commission

⁽²¹⁾ 2021 CSRs: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021H0992&from=EN>

2020 CSRs: <https://data.consilium.europa.eu/doc/document/ST-8436-2020-INIT/en/pdf>

2019 CSRs <https://data.consilium.europa.eu/doc/document/ST-10170-2019-REV-2/en/pdf>

⁽²²⁾ Incl. policy action reported in the National Reform Programme.

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

Hungary	Assessment in May 2022
2019 CSR1	Not relevant anymore
<i>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.</i>	Not relevant anymore
2019 CSR 2	Limited Progress
<i>Continue the labour market integration of the most vulnerable groups, in particular through upskilling, and improve the adequacy of social assistance and unemployment benefits.</i>	Limited Progress
<i>Improve education outcomes and increase the participation of disadvantaged groups, in particular Roma in quality mainstream education.</i>	No Progress
<i>Improve health outcomes by supporting preventive health measures and strengthening primary healthcare.</i>	Limited Progress
2019 CSR 3	Limited Progress
<i>Focus investment-related economic policy on research and innovation,</i>	Limited Progress
<i>low-carbon energy,</i>	Some Progress
<i>transport infrastructure, and</i>	Some Progress
<i>waste management and</i>	No Progress
<i>energy and resource efficiency, taking into account regional disparities.</i>	Limited Progress
<i>Improve competition in public procurement.</i>	Limited Progress
2019 CSR4	No Progress
<i>Reinforce the anti-corruption framework, including by improving prosecutorial efforts and access to public information, and</i>	No Progress
<i>strengthen judicial independence.</i>	No Progress
<i>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.</i>	No Progress
<i>Continue simplifying the tax system, while strengthening it against the risk of aggressive tax planning.</i>	Limited Progress
<i>Improve competition and regulatory predictability in the services sector.</i>	No Progress
2020 CSR1	Some progress
<i>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.</i>	Not relevant anymore
<i>Address shortages of health workers and ensure an adequate supply of critical medical products and infrastructure to increase the resilience of the health system.</i>	Some Progress
<i>Improve access to quality preventive and primary care services.</i>	Limited Progress
2020 CSR2	No Progress
<i>Protect employment through enhanced short-time working arrangements and effective active labour-market policies and extend the duration of unemployment benefits.</i>	Limited Progress
<i>Improve the adequacy of social assistance and ensure access to essential services and</i>	No Progress
<i>quality education for all.</i>	No Progress
2020 CSR 3	Some Progress
<i>Ensure liquidity support to SMEs.</i>	Substantial Progress
<i>Front-load mature public investment projects and</i>	Some Progress
<i>promote private investment to foster the economic recovery.</i>	Substantial Progress
<i>Focus investment on the green and digital transition, in particular clean and efficient production and use of energy,</i>	Some Progress
<i>sustainable transport,</i>	Some Progress
<i>water and waste management,</i>	No Progress
<i>research and innovation, and</i>	Limited Progress
<i>digital infrastructure for schools.</i>	Limited Progress
2020 CSR 4	Limited Progress
<i>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.</i>	Limited Progress
<i>Ensure effective involvement of social partners and stakeholders in the policy-making process.</i>	No Progress
<i>Improve competition in public procurement.</i>	Limited Progress
2020 CSR5	No Progress
<i>Strengthen the tax system against the risk of aggressive tax planning.</i>	No Progress

(Continued on the next page)

Table (continued)

2021 CSR1	Some progress
<i>In 2022, maintain a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.</i>	Substantial Progress
<i>When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.</i>	Some Progress
<i>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.</i>	Some Progress
<i>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.</i>	No Progress

Source: European Commission

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

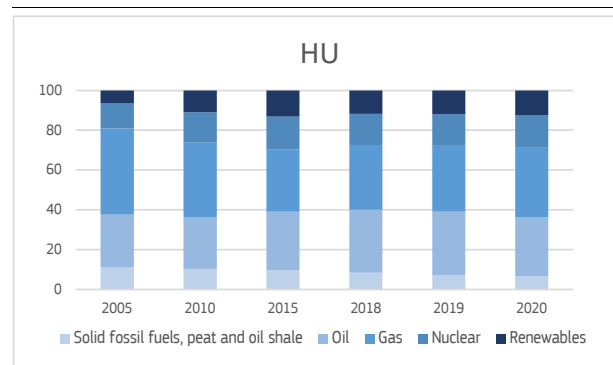
In recent decades, Hungary has made considerable progress in laying the foundations for a low-carbon economy.

However, the Hungarian economy is still more energy-intensive and carbon-intensive than the EU average. This shows that there are still large opportunities to make the Hungarian economy more climate resilient and sustainable. In 2020, Hungary's total greenhouse gas emissions (excluding the land-use sector) were at 67% of its 1990 levels. Although the emission intensity of its economy is higher than the EU average, emissions per capita in Hungary are lower than the EU average. Hungary is projected to reach its current 2030 effort-sharing target of cutting its emission levels by 7% by 2030 compared to 2005 levels with existing measures. With additional measures, Hungary would overachieve its target by 15 percentage points (i.e. it would cut emissions by 19% by 2030 compared to 2005 levels). Additional measures would contribute to attaining a higher level of ambition; Hungary's new effort-sharing target (under the July 2021 proposals delivering the European Green Deal) is to cut emission by 18.7% by 2030 compared to 2005 levels. Comprehensive measures would be needed to reverse the trend in recent years of increasing emissions in the transport sector. Under current land-management practices, Hungary is projected to see decreasing net removals of carbon by 2030.

Environmental taxation in Hungary is largely in line with the EU average, while government spending on environmental protection is below the EU average. Hungary's environmental tax revenues amount to 2.2% and 6% as a share of GDP and as a share of total tax revenues, respectively. Energy taxes account for

most of Hungary's environmental taxes, with transport taxes also contributing to the environmental tax base, albeit to a smaller extent. A small percentage of environmental taxes also comes from taxes on pollution. At the same time, the Hungarian government spends a smaller share of its expenditure on environmental protection than the EU average. Fossil fuel subsidies fell in 2020, but the decline has not been stable across time. Budgetary exposure to climate hazards (i.e. the climate risk to public finances due to uninsured assets) is considered low/moderate. (For more indicators on taxation, see Annex 18.)

Graph A5.1: **Energy, Share in energy mix (solids, oil, gas, nuclear, renewables(1))**



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

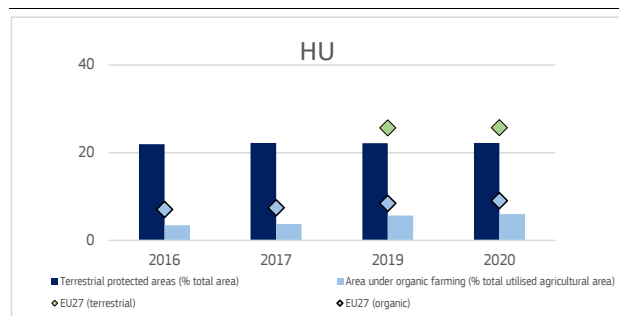
Source: Eurostat

Hungary still largely relies on fossil fuels, as the biggest contributor to its energy mix is natural gas (accounting for 35% of Hungary's energy mix in 2020), with oil having a share of 30%. Renewables represent 12% of the energy mix, around two thirds of which come from solid biofuels (biomass). Nuclear represents around 16% of the energy mix, whereas its share in electricity generation was 46% in 2020. Together with renewables (15%), 61% of Hungary's electricity generation mix can therefore be considered as coming from low-carbon sources (i.e. from either nuclear or renewable sources). Hungary aims to raise the percentage of carbon-free electricity generation to 90% by 2030, and in 2025 the country intends to phase out lignite-fired generation from electricity production (coal fired assets have already been taken from the grid).

Hungary's biodiversity and ecosystem health is deteriorating. In 2020, Hungary scored below

the EU average for the share of its terrestrial area devoted to protected areas. Moreover, two of Hungary's Natura 2000 sites have no management plans, and Hungary's Natura 2000 conservation measures and objectives are not yet entirely in line with the relevant guidance. Hungary also scores below the EU average on two other measures: utilised agricultural area under organic farming (6.03%) and share of land under forest (26.1%). Many protected habitats and species remain in unfavourable conservation status, with further recent declines. Only 13.3% of habitats are in good conservation status. However, Hungary has 35% of species in good conservation status, but this share is declining compared to previous years. Several factors are contributing to the general degradation of biodiversity in Hungary: (i) intensive agricultural practices; (ii) soil artificialisation; (iii) pollution of air, soil and water; and (iv) climate change.

Graph A5.2: **Biodiversity, Terrestrial protected areas and organic farming**



Source: EEA (terrestrial protected areas) and Eurostat (organic farming). For terrestrial protected areas data for 2018, and data for the EU average (2016, 2017) is lacking.

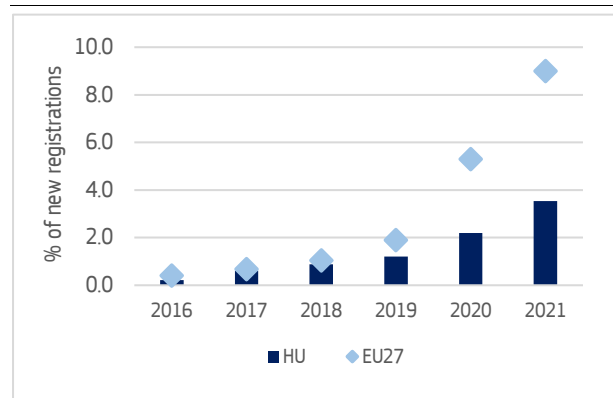
Air pollution in Hungary is serious cause for concern. Although emissions of key air pollutants in Hungary have decreased in recent years, they are still well above the EU average. In 2020, no exceedances above the EU limit values set by the Ambient Air Quality Directive were registered in Hungary. However, the European Commission is monitoring an infringement procedure against Hungary for persistent breaches of air-quality standards with exceedances of fine particulate matter (PM₁₀) and nitrogen dioxide (NO₂) limit values in several air-quality zones. These exceedances, severely damage human health and the environment. On the pollution of groundwater by nitrates, the situation in Hungary is generally good. However, a very high number of surface waters are eutrophic. Hungary has recorded poor water quality all around its territory and is one of

the Member States facing the greatest challenges to tackle nutrient pollution from agriculture.

On mobility, the number of public charging points for electric cars and the share of zero-emission passenger cars in new registrations is growing steadily in Hungary.

Hungary still scores below the EU average on these two measures, even though the corresponding indicators show that Hungary has a leading position in these areas compared to other central European countries. Hungary remains one of the most traffic-congested EU Member States, with an increasing number of hours lost per driver per year, mainly in urban areas (more than 42 hours per year in 2020 – above the EU average). Insufficient measures to tackle traffic congestion might jeopardise clean-mobility achievements in urban areas. About 42% of the railroad kilometres in Hungary are electrified. Over the last 5 years, Hungary has experienced a strong increase in emissions in the transport sector which is rapidly becoming the country's largest emitting sector. Transport emissions are projected to continue to increase under current policies

Graph A5.3: **Mobility, Share of zero emission vehicles (% of new registrations)**



Source: European Alternative Fuels Observatory. Zero emission vehicles (passenger cars) include battery and fuel cell electric vehicles (BEV, FCEV).

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

			2005	2019	2020	Target 2030	Distance		'Fit for 55'		
							WEM	WAM	Target 2030	Distance WEM	Distance WAM
Progress to policy targets	Non-ETS GHG emission reduction target ⁽¹⁾	MTCO2 eq. % pp ⁽²⁾	47.8	-7%	-7%	-7%	0	15	-19%	-12	3
									National contribution to 2030 EU target		
	Share of energy from renewable sources in gross final consumption of energy ⁽¹⁾	%	7%	14%	14%	13%	13%	14%	21%		
	Energy efficiency: primary energy consumption ⁽¹⁾	Mtoe	26.3	23.7	24.5	24.5	24.6	23.9	-		
	Energy efficiency: final energy consumption ⁽¹⁾	Mtoe	18.7	17.8	18.5	18.5	18.6	18.0	18.7		
			HUNGARY						EU		
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	2.5	2.5	2.4	2.3	2.3	2.2	2.4	2.4	2.2
	Environmental taxes (% of total taxation)	% of taxation ⁽³⁾	6.4	6.5	6.4	6.2	6.2	6.0	6.0	5.9	5.6
	Government expenditure on environmental protection	% of total exp.	2.36	1.06	0.94	0.80	1.04	-	1.66	1.69	-
	Investment in environmental protection	% of GDP ⁽⁴⁾	1.58	0.39	0.39	0.49	-	-	0.42	0.38	0.41
	Share of green bonds		-	-	-	-	-	-	-	-	-
	Fossil fuel subsidies	EUR2020bn	1.64	1.54	1.75	1.69	1.77	1.30	56.87	55.70	41.27
Climate protection gap ⁽⁵⁾	score 1-4	1.3 out of 4 (decrease from historical level of 1.8). This is a low risk category (4 being a high risk).									
Climate	Net GHG emissions	1990 = 100	65	66	69	69	69	67	79	76	69
	GHG emissions intensity of the economy	kg/EUR 10	0.61	0.60	0.60	0.57	0.53	0.55	0.32	0.31	0.30
	Energy intensity of the economy	kgoe/EUR*10	0.23	0.23	0.23	0.22	0.21	0.21	0.12	0.11	0.11
Energy	Final energy consumption (FEC)	2015=100	100.0	102.2	106.3	106.5	106.9	103.5	103.5	102.9	94.6
	FEC in residential building sector	2015=100	100.0	103.4	105.4	97.5	95.1	99.9	101.9	101.3	101.3
	FEC in services building sector	2015=100	100.0	99.4	97.8	95.2	93.0	90.8	102.4	100.1	94.4
Pollution	Smog-precursor emission intensity (to GDP) ⁽⁴⁾	tonne/EUR 10 ⁽⁶⁾	1.80	1.66	1.60	1.54	1.40	-	0.99	0.93	-
	Years of life lost caused due to air pollution by PM2.5	per 100,000 inh.	1413	1322	1558	1559	1205	-	863	762	-
	Years of life lost due to air pollution by NO2	per 100,000 inh.	145	84	139	101	102	-	120	99	-
	Nitrate in ground water	mg NO3/litre	-	-	-	-	-	-	21.7	20.7	-
Biodiversity	Terrestrial protected areas	% of total	-	22.0	22.2	-	22.2	22.2	-	25.7	25.7
	Marine protected areas	% of total	-	-	-	-	-	-	-	-	-
	Organic farming	% of total utilised agricultural area	2.4	3.5	3.7	3.9	5.7	6.0	8.0	8.5	9.1
			2000-2006		2006-2012		2012-2018		00-06	06-12	12-18
Net land take			16.1		8.1		5.9		13.0	11.0	5.0
Mobility	GHG emissions intensity of transport (to GVA) ⁽⁷⁾	kg/EUR 10	1.13	1.06	1.14	1.14	1.02	0.94	0.89	0.87	0.83
	Share of zero emission vehicles ⁽⁸⁾	% in new registrations	0.2	0.2	0.6	0.9	1.2	2.2	1.0	1.9	5.3
	Number of plug-in electric vehicles per charging point		2	3	6	6	8	8	6	7	10
	Share of electrified railways	%	39.0	39.9	40.5	40.5	41.9	-	55.6	56.0	-
	Congestion (average number of hours spent in road congestion per year by a representative commuting driver)		27.3	27.6	27.6	27.3	30.2	-	28.9	28.8	-
Digital			Year	HU	EU						
	Share of smart meters in total metering points ⁽⁹⁾ - electricity	% of total	2018	1.0	35.8						
	Share of smart meters in total metering points ⁽⁹⁾ - gas	% of total	2018	0.2	13.1						
	ICT used for environmental sustainability ⁽¹⁰⁾	%	2021	65.1	65.9						

(1) The 2030 non-ETS GHG target is based on the Effort Sharing Regulation. The Fit for 55 targets are based on the Commission proposal to increase the EU's climate ambition by 2030. Renewables and energy efficiency targets and national contributions under the Governance Regulation (Regulation (EU) 2018/1999).

(2) Distance to target is the gap between 2030 Effort Sharing Regulation targets and projected emissions with existing measures (WEM) and with additional measures (WAM) as a percentage of 2005 base year emissions.

(3) Percentage of total revenues from taxes and social contributions (excluding imputed social contributions). Revenues from the Emissions Trading System are included in environmental tax revenues (in 2017 they amounted to 1.5% of total environmental tax revenues at the EU level).

(4) Covers expenditure on gross fixed capital formation to be used for the production of environmental protection services (i.e. abatement and prevention of pollution) covering all sectors, i.e. government, industry and specialised providers.

(5) The climate protection gap indicator is part of the EU adaptation strategy (February 2021), and is defined as the share of non-insured economic losses caused by climate-related disasters.

(6) Sulfur oxides (SO₂ equivalent), ammonia, particulates < 10µm, nitrogen oxides in total economy (divided by GDP).

(7) Transportation and storage (NACE Section H).

(8) Zero-emission vehicles include battery-electric vehicles and fuel-cell electric vehicles.

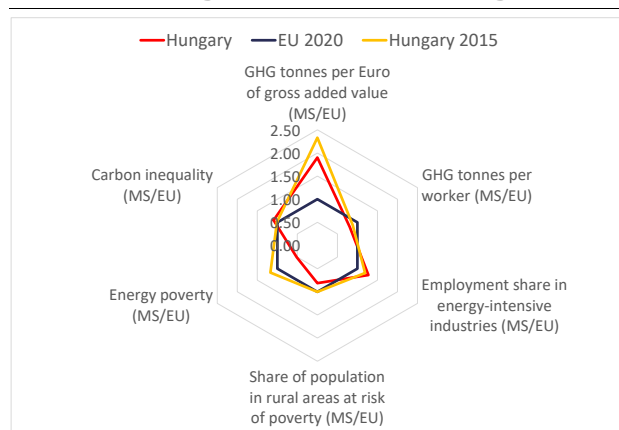
(9) European Commission Report (2019) 'Benchmarking smart metering deployment in the EU-28'.

(10) European Commission (2021). Each year the Digital Economy and Society Index (DESI) is re-calculated for all countries for previous years to reflect any possible change in the choice of indicators and corrections to the underlying data. Country scores and rankings may thus differ compared with previous publications.

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

The green transition not only encompasses improvements to environmental sustainability, but also includes a significant social dimension. While measures in this regard include the opportunity for sustainable growth and job creation, it must also be ensured that no one is left behind and all groups in society benefit from the transition.

Graph A6.1: Fair green transition challenges



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

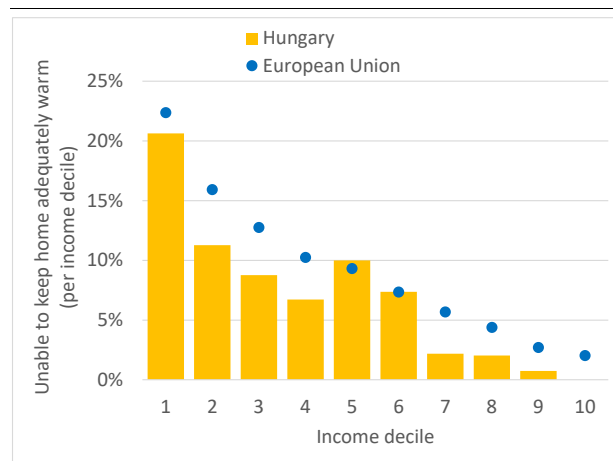
Source: Eurostat, World Inequality Database

Hungary's green economy is still limited and its development, supported by investments and reforms included in the RRP, can foster sustainable growth and quality job creation. At the same time, the green transition is expected to affect low to middle-income groups to a larger extent.

Hungary's draft recovery and resilience plan (RRP) outlines two proposed investments for a fair green transition. For poor households with young children in the 300 most deprived settlements, it plans to provide electric heating in at least one room. Hungary would install social solar power plants and provide social transfer using the revenues from these power plants. For households with income below the national average, the RRP supports energy saving by replacing windows and upgrading heating installations through solar panels and heat pumps. Together with the Recovery and Resilience Facility, the European Social Fund Plus (ESF+) will help to unlock the potential for 'green jobs' in Hungary. Hungary's 2020 national energy and climate plan found that 9.8% of the country's households were

in energy poverty in 2016. However, this national energy and climate plan continues with a sub-plan to reduce the cost of utilities' which: (i) does not account for the specificities of vulnerable households; and (ii) does not specifically address the social, employment and skills consequences of a just transition. Hungary's draft just transition plan 2021-2027 could also be strengthened with more detail on addressing those challenges.

Graph A6.2: Energy poverty by income decile



(1) HH050: Ability to keep home adequately warm;
 (2) HY020: Total disposable household income

Source: Eurostat EU-SILC survey (2020)

Even though key energy-intensive sectors remain sizeable, Hungary's economy has slightly reduced its carbon footprint and the modest green sector has strong potential for job creation. The greenhouse gas (GHG) emissions intensity of the Hungarian economy decreased slightly between 2015 and 2020 (in terms of gross value added) and now stands 33% below the EU average, with an average carbon footprint per worker at 10.98 tonnes of GHG emissions (13.61 in the EU) (see Figure 1). Sectors that are likely to decline due to the green transition include coal/lignite extraction and fossil-fuel-based electricity production⁽²³⁾. Together with Hungary's energy-intensive industry, including metals, cement and chemicals⁽²⁴⁾, these sectors that are set to decline provide jobs for 3.9% of all workers, for whom upskilling and reskilling could be particularly important (see Annex 15). Although no indicators are available on the employment

⁽²³⁾ SWD(2021) 275 final.

⁽²⁴⁾ 2020 European Semester: Overview of Investment Guidance on the Just Transition Fund 2021-2027 per Member State (Annex D).

share of environmental goods and services ⁽²⁵⁾, renewable energy and energy-efficiency improvements offer opportunities to create more green jobs ⁽²⁶⁾. Labour shortages linked to the transition to a climate-neutral economy have been identified in the energy sector ⁽²⁷⁾.

The green transition presents manageable social challenges for Hungary. The share of people at risk of poverty or social exclusion is lower in Hungary than the EU on average (19.4% in Hungary and 21.6% in the EU-27), but close to the average in rural areas (22.2% in Hungarian rural areas and 22.8% in EU-27 rural areas) ⁽²⁸⁾. The share of the population unable to keep their homes adequately warm (see Graph A6.2) was below the EU average in 2020 (4.2% in Hungary compared to 8.2% in the EU), as the government regulations have ensured that the price of electricity, gas and district heating has remained unchanged since 2013. Firewood, which is not covered by this price freeze, is still widely used in rural areas, and its price has increased by 75% since 2010. Lower-income groups, especially Roma are affected the most by these price increases, as 37% of lower-income groups do not have access to adequate housing. Consumption patterns vary across the population: the average carbon footprint for the top 10% of emitters in Hungary is about 6 times higher than that of the bottom 50% of the population (against an average of 5.3 times in the EU).

Tax systems are key to ensuring a fair transition to climate neutrality ⁽²⁹⁾. Hungary's revenues from total environmental taxes slightly decreased between 2015 and 2019 from 2.47% of GDP to 2.26%, and fell further to 2.18% in 2020 (against 2.24% in the EU in 2020). The

labour tax wedge for low-income earners ⁽³⁰⁾ decreased from 49% to 44.6% from 2015 to 2019, and to 43.2% in 2020, (compared to 31.9% in the EU in 2020) (see Annex 18). There is thus scope to increase environmental taxation accompanied with redistributive measures to limit their impact on the living standards of low-income households.

⁽²⁵⁾ There is currently no common EU-wide definition of green jobs. The environmental goods and services sector (EGSS) accounts only report on an economic sector that generates environmental products, i.e. goods and services produced for environmental protection or resource management.

⁽²⁶⁾ <https://publications.jrc.ec.europa.eu/repository/handle/JRC126047>.

⁽²⁷⁾ Eurofound (2021), Tackling labour shortages in EU Member States, Publications Office of the European Union, Luxembourg.

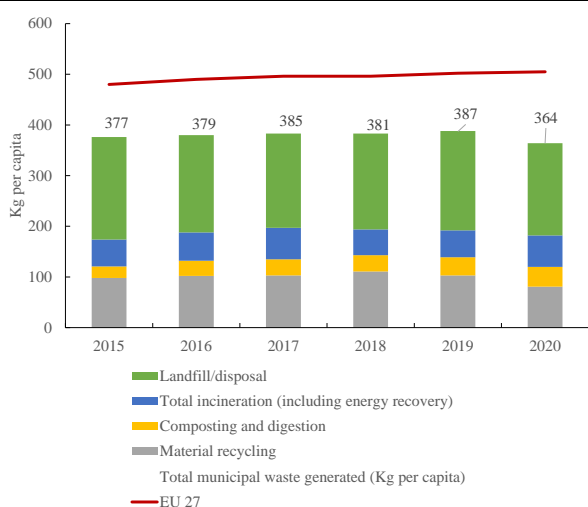
⁽²⁸⁾ Based on COM(2021) 568 final (Annex I) this indicator can be used as a proxy for potential transport challenges in the context of the green transition (e.g. due to vulnerability to fuel prices).

⁽²⁹⁾ COM(2021) 801 final.

⁽³⁰⁾ Tax wedge for a single earner at 50% of the national average wage (Tax and benefits database, European Commission/OECD).

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

Graph A7.1: **Municipal waste treatment**



Source: Eurostat

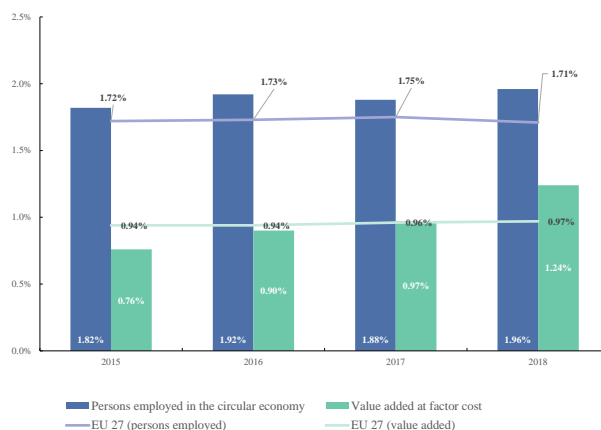
Hungary performs worse than the EU average in its use of circular secondary materials. Hungary has made steady progress in this area in recent years, but with a circularity rate of 8.7% (versus 12.8% for the EU), a large share of materials are still not recycled or reused in the Hungarian economy. A national circular economy platform was set up in 2018 to monitor the situation. Currently, there is little awareness of the circular economy in Hungary, and its principles (water and energy savings, waste reduction, recycling, eco-design, and secondary markets) are not sufficiently integrated into all economic sectors.

Resource productivity in Hungary remains 31% below the EU average. Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help to minimise damage to the environment and reduce dependency on volatile raw material markets.

Despite a small recent increase in the country’s ability to produce wealth from material resources (up by 7.3% from 2019-2020), Hungary’s resource productivity has not changed substantially over the past 5 years, and it continues to be one of the lowest performers in the EU.

Hungary has failed to meet its 2020 recycling target and is still well below the EU average in recycling. Hungary’s municipal-waste generation is lower than the EU average (1 879 kg/capita against an EU average of 5 234 kg/capita in 2018), but increasing, partly related to its lower but converging income level. The country has made progress in increasing its recycling rate from 32.2% in 2015 to 37.4% in 2018 and in diverting municipal waste from landfilling by reducing the landfill rate from 74% in 2004 to 24.5% in 2018. Still, landfill remains a major waste-management method, and Hungary requires further investment to reach the EU recycling targets. Furthermore, Hungary failed to reach its 2018 target to improve the recycling rate for glass packaging, and the recycling rate of municipal waste has also decreased since 2018.

Graph A7.2: **Economic importance and expansion of the circular economy - employment and value added in the circular economy**



(1) Employment and value added in the Circular Economy sectors

Source: Eurostat

Hungary needs to catch up with the EU on environmental technology and innovation. Hungary ranked 25th among EU members in the Eco-Innovation Scoreboard of 2021, with the weakest performance in eco-innovation inputs and outputs.

Table A7.1: Selected resource efficiency indicators

SUB-POLICY AREA	2015	2016	2017	2018	2019	2020	EU27	Latest year EU 27
Circularity								
Resource Productivity (Purchasing power standard (PPS) per kilogram)	1.5	1.6	1.5	1.4	1.4	1.5	2.2	2020
Material Intensity (kg/EUR)	0.7	0.6	0.7	0.7	0.7	0.6	0.4	2020
Circular Material Use Rate (%)	5.8	6.5	6.9	7.0	7.3	8.7	12.8	2020
Material footprint (Tones/capita)	13.1	12.6	14.3	15.5	16.6	-	14.6	2019
Waste								
Waste generation (kg/capita, total waste)	-	1624	-	1879	-	-	5234	2018
Landfilling (% of total waste treated)	-	34.2	-	24.5	-	-	38.5	2018
Recycling rate (% of municipal waste)	32.2	34.7	35.0	37.4	35.9	33.0	47.8	2020
Hazardous waste (% of municipal waste)	-	2.9	-	3.0	-	-	4.3	2018
Competitiveness								
Gross value added in environmental goods and services sector (% of GDP)	-	-	-	-	-	-	2.3	2018
Private investment in circular economy (% of GDP)	0.1	0.2	0.1	0.2	-	-	0.1	2018

Source: Eurostat

Graph - Economic importance and expansion of the circular economy

	2015	2016	2017	2018	2019	2020
Persons employed in the circular economy, HU (% of total employment)	1.82%	1.92%	1.88%	1.96%	-	-
Value added at factor cost, HU (% of GDP)	0.76%	0.90%	0.97%	1.24%	-	-
Persons employed in the circular economy, EU27 (% of total employment)	1.72%	1.73%	1.75%	1.71%	-	-
Value added at factor cost, EU27 (% of GDP)	0.94%	0.94%	0.96%	0.97%	-	-

Source: Eurostat

Graph - Municipal waste treatment

	2015	2016	2017	2018	2019	2020
Total municipal waste generated (Kg per capita)	377	379	385	381	387	364
Total waste treatment	377	380	383	383	388	364
Material recycling	98	102	103	111	103	81
Composting and digestion	23	30	32	32	36	39
Total incineration (including energy recovery)	53	56	62	51	53	62
Landfill/disposal	202	192	186	189	196	182
Difference waste generated/treatment	0	-1	2			0
EU 27	480	490	496	496	502	505

Source: Eurostat

ANNEX 8: DIGITAL TRANSITION

The Digital Economy and Society Index (DESI) monitors EU Member States' digital progress.

The areas of human capital, digital connectivity, the integration of digital technologies by businesses and digital public services reflect the Digital Decade's four cardinal points ⁽³¹⁾. This Annex describes Hungary's DESI performance.

Hungary scores below the EU average in the DESI dimension on human capital. 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 rather low.

Broadband connectivity has improved significantly. Fixed very high capacity network coverage went up from 49% in 2020 to 79% in 2021, surpassing the EU average of 70%. However, 5G coverage remains low (18% of populated areas in June 2021 compared to 66% in the EU).

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

Human capital	Hungary			EU	EU top-performance
	DESI 2020	DESI 2021	DESI 2022	DESI 2022	DESI 2022
At least basic digital skills	NA	NA	49%	54%	79%
% individuals			2021	2021	2021
ICT specialists	3.4%	3.8%	3.9%	4.5%	8.0%
% individuals in employment aged 15-74	2019	2020	2021	2021	2021
Female ICT specialists	11%	12%	14%	19%	28%
% ICT specialists	2019	2020	2021	2021	2021
Connectivity					
Fixed Very High Capacity Network (VHCN) coverage	43%	49%	79%	70%	100%
% households	2019	2020	2021	2021	2021
5G coverage (1)	NA	7%	18%	66%	99.7%
% populated areas		2020	2021	2021	2021
Integration of digital technology					
SMEs with at least a basic level of digital intensity	NA	NA	34%	55%	86%
% SMEs			2021	2021	2021
Big data	6%	7%	7%	14%	31%
% enterprises	2018	2020	2020	2020	2020
Cloud	NA	NA	21%	34%	69%
% enterprises			2021	2021	2021
Artificial Intelligence	NA	NA	3%	8%	24%
% enterprises			2021	2021	2021
Digital public services					
Digital public services for citizens	NA	NA	64	75	100
Score (0 to 100)			2021	2021	2021
Digital public services for businesses	NA	NA	74	82	100
Score (0 to 100)			2021	2021	2021

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

Source: Digital Economy and Society Index

⁽³¹⁾ 2030 Digital Compass: the European Way for the Digital Decade Communication, COM (2021) 118 final

Hungary performs poorly on the integration of digital technology into business activities.

Only 34% of SMEs in Hungary were of at-least-basic digital intensity in 2021 (compared with 55% for the EU average). The use of advanced digital technologies, like big data and artificial intelligence, is less than half the EU average (7% in Hungary against 14% in the EU), and 13 percentage points lower for cloud (21% in Hungary against 34% in the EU).

Digital public services also remain a challenge. Hungary`s scores for provision of digital public services to both businesses and the general public are below the EU average, mainly because of the lack of cross-border services.

This Annex provides a general overview on the performance of Hungary's research and innovation system. Hungary is an emerging innovator and its performance relative to the EU has deteriorated in recent years according to the 2021 edition of the European Innovation Scoreboard ⁽³²⁾.

The outputs of the Hungarian public science system and the availability of science-savvy workers remained below the EU average. Total R&D intensity increased to 1.61% in 2020, but remained below the target of 1.8% that Hungary had set for itself. While private R&D spending rose, public sector R&D spending decreased over the last decade from 0.43% of GDP in 2010 to 0.37% of GDP in 2020, well below the EU average of 0.78%. While the share of science and engineering graduates in the 25-34 age group rose in the early 2010s, it stagnated in recently and remains significantly below the EU average.

Despite the generous public support for private R&D, academia-business linkages have not improved. Despite rising R&D expenditure by Hungarian businesses, science-business linkages have remained weak. This is reflected in the low share of public research that is funded by the private sector. This share remains just one-fifth of the EU average. On the positive side, the volume of venture capital has increased over the last decade, reaching 0.08% of GDP, which is well above the EU average. The employment in fast-growing enterprises in the 50% of most innovative sectors is also above the EU average.

Altogether the limited resources that Hungary devoted to science resulted in stagnating scientific performance. The share of scientific publications by Hungarian authors that were among the highest-cited in the world increased somewhat (from 4.7% in 2013 to 5.5% in 2018), but the number of patent applications decreased. Both indicators remained well below the EU average.

There has recently been centralisation and a rapid change in the organisational model of several Hungarian universities. These universities have come under the ownership and management of private foundations whose board members are appointed by the government for life. In addition, the Eötvös Loránd research network took control of 40 institutes that belonged to the Hungarian Academy of Sciences. These changes have not yet brought the anticipated positive effects in improvements to the quality of higher education and research in Hungary. The public monitoring of teachers' and researchers' autonomy, accountability and performance in these institutions will be key.

⁽³²⁾ 2021 European Innovation Scoreboard, Country profile:

Hungary

<https://ec.europa.eu/docsroom/documents/45917/attachments/1/translations/en/renditions/native>

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

Hungary	2010	2015	2018	2019	2020	Compound annual grow average 2010-20	EU
Key indicators							
R&D Intensity (GERD as % of GDP)	1.13	1.34	1.51	1.48	1.60	2.39	2.32
Public expenditure on R&D as % of GDP	0.43	0.34	0.36	0.36	0.37	-2.35	0.78
Business enterprise expenditure on R&D (BERD) as % of GDP	0.68	0.98	1.14	1.11	1.22	4.83	1.53
Quality of the R&I system							
Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country	5	4.9	5.5	:	:	1.1	9.9
PCT patent applications per billion GDP (in PPS)	1.4	1.3	1.1			-3,2	3.5
Academia-business cooperation							
Public-private scientific co-publications as % of total publications	9.3	9.7	10.2	10.4	10.1	0.8	9.05
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.057	0.029	0.021	0.01		-20.2	0.054
Human capital and skills availability							
New graduates in science & engineering per thousand pop. aged 25-34	7.2	10.7	9.5	9.3	:	0.9	16.3
Public support for business enterprise expenditure on R&D (BERD)							
Total public sector support for BERD as % of GDP	0.265	0.354	0.257	0.245	:	-3.7	0.196
R&D tax incentives: foregone revenues as % of GDP	0.163	0.148	0.057	0.053	:	-11.7	0.100
Green innovation							
Environment-related patents	11,8	10,8	11.3	10.3		-1,7	12,8
Finance for innovation and Economic renewal							
Venture Capital (market statistics) as % of GDP	0.01	0.04	0.041	0.061	0.081	23.1	0.054
Employment in fast-growing enterprises in 50% most innovative sectors	7.5	8.7	8.9	8.1	8	0.8	5.5

DG Research and Innovation - Common R&I Strategy and Foresight Service - Chief Economist Unit

Source: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical database), Invest Europe

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

Hungary is highly integrated into the single market. The ratio of intra-EU trade value to extra-EU trade value is 3.16 compared to an EU average of 1.59. Hungary also relies more heavily on an EU sources than the EU average (27.3% of value added is sourced from the rest of the EU compared to an EU average of 19.7%).

Hungarian firms are often found in the low value-added stage of global supply chains. These activities are also particularly vulnerable to value-chain disruptions. Because of their labour intensive activities, Hungarian firms are especially exposed to labour shortages: 33% of firms report problems finding an adequate workforce compared to an EU average of 14%.

Hungary has high investment levels but their composition of this investment does not favour research and innovation. In recent years, private and public investment were above the EU average. Private investment was spurred by new foreign direct investment, as well as companies' efforts to automate production. Nevertheless, there is a large gap between Hungary and the EU average for intangible investment, especially in manufacturing and in information-communication, two sectors that typically make intensive use of intangible assets⁽³³⁾. Closing this gap would allow Hungarian firms to access knowledge and skills which could strengthen their position in global value chains and increase productivity. However, research and innovation remain a low priority for public investments (see also in Annex 9).

⁽³³⁾ JRC Country Factsheet on Productivity – Hungary (2022), European Commission, internal communication.

The business environment is overall supportive, but concerns remain about corruption, public procurement and economic protectionism. In the EIB Investment Survey 2021, Hungarian firms were on average more optimistic about the outlook for the political and regulatory climate and the availability of external finance than their European peers⁽³⁴⁾. Nonetheless, data by the European Investment Fund point to stronger financing constraints for SMEs in Hungary than in the EU (see Table A10.1). Business surveys show that managers are relatively satisfied with policy stability, public administration, taxation and public subsidies, and the flexibility of labour market regulations in Hungary, compared to other central and eastern European countries or the EU average. However, the same surveys also show that Hungary performs relatively poorly in the fight against corruption and the transparency of public procurement⁽³⁵⁾. The perceived risk of economic protectionism is also relatively high in regional comparison⁽³⁶⁾. Policies that aim to shield certain markets from competition can reduce consumer welfare. For example, more Hungarian consumers complain about the negative impact of low competition than the EU average in food retailing, pharmaceutical products and financial services⁽³⁷⁾.

The competitiveness of public procurement remains a significant challenge in Hungary. Systemic factors continue to hinder fair competition in public procurement and risk undermining the efficiency of the selection process. Public bodies do not always receive the best value for money as the proportion of contracts awarded where there is just one bidder is one of the highest in the EU⁽³⁸⁾. Hungary performs better in comparison to the EU average when it comes to the proportion of SMEs among

⁽³⁴⁾ EIB (2021): EIB Investment Survey 2021: Hungary Overview. European Investment Bank. Available at <https://bit.ly/3kJKW9G>

⁽³⁵⁾ AHK (2021): AHK Konjunkturumfrage Mittel- und Osteuropa 2021. German Chambers of Commerce. Available at <https://bit.ly/3kJHbRy>. European Commission (2019): Flash Eurobarometer 482: Businesses and corruption. Available at <https://europa.eu/eurobarometer/surveys/detail/2248>

⁽³⁶⁾ DUIHK (2021): DUIHK-Konjunkturumfrage Herbst 2021. Deutsch-Ungarische Industrie- und Handelskammer. Available at <https://bit.ly/3ycScmp>

⁽³⁷⁾ European Commission (2019): Flash Eurobarometer 476: Citizens' perceptions about competition policy. Available at: <https://europa.eu/eurobarometer/surveys/detail/2209>

⁽³⁸⁾ [Public Procurement | Single market scoreboard \(europa.eu\)](https://europa.eu/eurobarometer/surveys/detail/2209)

public procurement contractors (78% compared to an EU average of 63%) and the proportion of bids from SMEs (77% compared to an EU average of 70.8%). However, there is still room for improvement as SMEs constitute the largest proportion of companies in the economy.

Table A10.1: Overview of Industry and Single Market in Hungary

SUB-POLICY AREA	INDICATOR NAME	DESCRIPTION	2021	2020	2019	2018	2017	Growth rates	EU27 average*
HEADLINE INDICATORS									
Economic structure	Value added by source (domestic)	VA that depends on domestic intermediate inputs, % [source: OECD (TIVA), 2018]				56.26			62.6%
	Value added by source (EU)	VA imported from the rest of the EU, % [source: OECD (TIVA), 2018]				27.32			19.7%
	Value added by source (extra-EU)	% VA imported from the rest of the world, % [source: OECD (TIVA), 2018]				16.4			17.6%
	Cost competitiveness	Producer energy price (industry)	Index (2015=100) [source: Eurostat, sts_inppd_a]	133	104.5	109.2	105.6	97.3	36.7%	127.3
RESILIENCE									
Shortages/supply chain disruptions	Material Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	25	10	14	10	12	108%	26%
	Labour Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	33	25	57	61	52	-37%	14%
	Sectoral producer prices	Average (across sectors), 2021 compared to 2020 and 2019, index [source: Eurostat]						12.8%	5.4%
Strategic dependencies	Concentration in selected raw materials	Import concentration a basket of critical raw materials, index [source: COMEXT]	0.19	0.2	0.18	0.2	0.2	-5%	17%
	Installed renewables electricity capacity	Share of renewable electricity to total capacity, % [source: Eurostat, nrg_inf_epc]		16.10	12.10	7.80	5.20	210%	
Investment dynamics	Net Private investments	Change in private capital stock, net of depreciation, % GDP [source: Ameco]		6.7	8.6	6.6	4.9	36.7%	2.6%
	Net Public investments	Change in public capital stock, net of depreciation, % GDP [source: Ameco]		2.5	2.6	2.3	1.1	127%	0.4%
SINGLE MARKET									
Single Market integration	Intra-EU trade	Ratio of Intra-EU trade to Extra-EU trade, index [source: Ameco]	2.96	2.95	3.04	3.08	3.16	-7%	1.59
Professional services restrictiveness	Regulatory restrictiveness indicator	Restrictiveness of access to and exercise of regulated professions (professions with above median restrictiveness, out of the 7 professions analysed in SWD (2021)185 [source: SWD (2021)185; SWD(2016)436 final])	2				3	-33.3%	3.37
	Recognition decisions w/o compensation	Professionals qualified in another EU MS applying to host MS, % over total decisions taken by host MS [source: Regulated professions database]	26.7						45%
Compliance - cooperation EC and MS	Transposition - overall	5 sub-indicators, sum of scores [source: Single Market Scoreboard]		Below average	On average	On average	Above average		
	Infringements - overall	4 sub-indicators, sum of scores [source: Single Market Scoreboard]		On average	Below average	Below average	On average		
Investment protection	Confidence in investment protection	Companies confident that their investment is protected by the law and courts of MS if something goes wrong, % of all firms surveyed [source: Flash Eurobarometer 504]	50						56%
BUSINESS ENVIRONMENT - SMEs									
Business demography	Bankruptcies	Index (2015=100) [source: Eurostat, sts_rb_a]	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	70.1 (2020)
	Business registrations	Index (2015=100) [source: Eurostat, sts_rb_a]	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	105.6
	Late payments	Share of SMEs experiencing late payments in past 6 months, % [source: SAFE]	34.6	43.9	50.9	n.a.	n.a.	-32%	45%
Access to finance	EIF Access to finance index - Loan	Composite: SME external financing over last 6 months, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]	0.37	0.42	0.24	0.23		64.2%	0.56 (2020)
	EIF Access to finance index - Equity	Composite: VC/GDP, IPO/GDP, SMEs using equity, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]	0.13	0.12	0.11	0.12		2.9%	0.18 (2020)
	% of rejected or refused loans	SMEs whose bank loans' applications were refused or rejected, % [source: SAFE]	17.4	6	15.6	11.7	12.7	37.1%	1240.0%
Public procurement	SME contractors	Contractors which are SMEs, % of total [source: Single Market Scoreboard]	78	60	65	68		14.7%	63%
	SME bids	Bids from SMEs, % of total [source: Single Market Scoreboard]	77	74	66	69		12%	70.8%

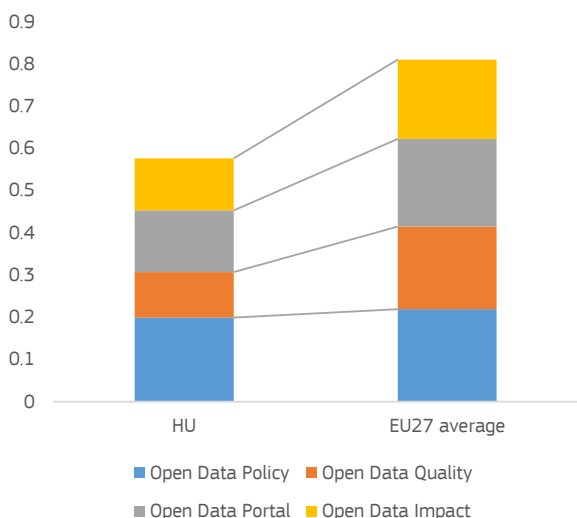
(*) latest available

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

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

Overall, the public administration in Hungary is much less effective than the average in the EU-27⁽³⁹⁾. Reform strategies in Hungary’s public administration and governance are fragmented between several policy areas. Although open-public-consultation impact assessments and transparent legislative procedures are provided for in the law, they are not routinely applied in practice. Instead, rules on expedited procedures are followed on a routine basis. This removes transparency, and circumvents parliamentary discussions or evidence-based decision-making. The powers of local governments, including their financial independence, have also been reduced.

Graph A11.1: Open government data maturity



Source: Open Data Maturity | data.europa.eu

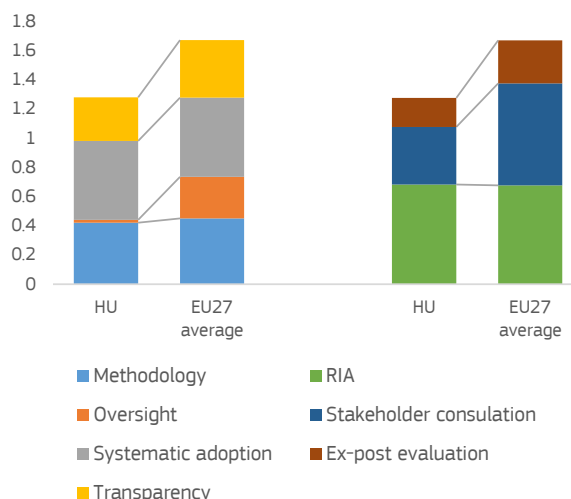
There is room for improving the digitalisation of public services. The volume of public services provided in-person has decreased significantly. The share of e-government users is above the EU average. However, Hungary is below the EU average on dimensions of the e-government benchmark indicators such as transparency and

cross-border services, as well as for the overall index.

Hungary scores low on selected indicators measuring government transparency and oversight institutions. The scope of activities of Hungary’s independent fiscal institution is narrower than that of the average EU country. Moreover, it is not advanced in the provision of open data (Graph A11.1), thus reducing the potential of public information to hold institutions accountable to citizens. The Commission’s 2021 Rule of Law Report notes concerns over the lack of systematic checks and the lack of sufficient oversight of declarations of assets and interests.

The human-resource management system of Hungary’s public administration has shortcomings. Recruitment to public-sector jobs is opaque, as competitive procedures are not compulsory. The turnover of senior civil servants following a change in government is relatively high, and the participation of civil servants in adult learning is also low. There is also a low share of public administration employees with tertiary education. Gender parity in senior civil service positions is also poor.

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



(1) RIA: Regulatory Impact Assessment

Source: OECD (IREG indicators)

The draft Hungarian RRP aims to simplify administrative decision-making. However, reforms aiming at improving evidence-based policy making are missing. Even though, this is an area where there is visible room for improvement. In particular, there is room to improve stakeholder

⁽³⁹⁾ Worldwide Governance Indicators, 2020.

consultation and ex-post evaluations of legislation (Graph A11.2).

Hungary's ranking on selected fiscal framework indicators is below the EU average. This is the case for both Hungary's national medium-term budgetary framework and the strength of its fiscal rules indices. Despite the introduction of stronger rule monitoring and aligning more fiscal rules with EU regulations, there is still room to further develop monitoring and forecasting of the fiscal situation. There is also room to further develop the public procurement indicator, given the high shares of

contracts awarded where there was just a single bidder and a relatively long mean decision-making period for contract awards.

The justice system performs efficiently but there are concerns about independence. The estimated time needed to resolve litigious civil and commercial cases at first instance is low (165 days in 2020), as is the estimated time to resolve administrative cases at first instance (110 days in 2020). The overall quality of the justice system is good: digital tools are broadly used in courts, but there are concerns over the inclusiveness of the legal aid scheme. Concerns over judicial independence persist⁽⁴⁰⁾.

Table A11.1: **Public Administration Indicators - Hungary**

HU	Indicator (1)	2017	2018	2019	2020	2021	EU27
E-government							
1	Share of individuals who used internet within the last year to interact with public authorities (%)	59.0	67.0	64.0	70.0	81.0	70.8
2	2021 e-government benchmark's overall score (2)	na	na	na	na	66.2	70.9
Open government and independent fiscal institutions							
3	2021 open data maturity index	na	na	na	na	57.7	81.1
4	Scope Index of Fiscal Institutions	36.4	51.4	51.4	51.4	na	56.8
Educational attainment level, adult learning, gender parity and ageing							
5	Share of public administration employees with tertiary education, levels 5-8 (3)	33.8	36.6	38.8	41.2	45.4	55.3
6	Participation rate of public administration employees in adult learning (3)	12.1	12.5	11.3	10.8	8.5	18.6
7	Gender parity in senior civil service positions (4)	51.0	63.2	64.2	63.4	62.6	21.8
8	Share of public sector workers between 55 and 74 years (3)	15.3	16.3	15.1	15.5	15.8	21.3
Public Financial Management							
9	Medium term budgetary framework index	0.55	0.55	0.55	0.55	na	0.72
10	Strength of fiscal rules index	0.7	0.8	0.8	0.8	na	1.5
11	Public procurement composite indicator	-3.0	2.0	-0.3	1.7	na	-0.7
Evidence-based policy making							
12	Index of regulatory policy and governance practices in the areas of stakeholder engagement, Regulatory Impact Assessment (RIA) and ex post evaluation of legislation	1.27	na	na	1.28	na	1.7

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

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

Source: ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Fiscal Governance Database (# 4, 9, 10); Labour Force Survey, Eurostat (# 5, 6, 8), European Institute for Gender Equality (# 7), Single Market Scoreboard public procurement composite indicator (# 11); OECD Indicators of Regulatory Policy and Governance (# 12).

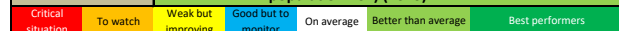
⁽⁴⁰⁾ For more detailed analysis of the performance of the justice system in Hungary, see the 2022 EU Justice Scoreboard (forthcoming) and the country chapter for Hungary of the Commission's 2022 Rule of Law Report (forthcoming).

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

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

The labour market in Hungary has been recovering strongly, but the labour market participation of women, young people and vulnerable groups remains a challenge. At 78.8% in 2021, Hungary’s employment rate is well above the EU average (73.1%). However, the gender employment and pay gaps in the country have risen in recent years. The employment impact of parenthood is among the highest in the EU, and contributes to women’s lower labour market participation. This is partly due to the scarcity of places in nurseries and kindergartens (76% of settlements were without crèche places in 2020), and the possibility for Hungarians to take parental leave for up to 3 years. The participation of children below the age of 3 in childcare is among the lowest in the EU (16.9% vs 35.3% in the EU in 2019).⁽⁴¹⁾ The investment in 3300 new crèche places as part of Hungary’s RRP will help to address this challenge. The share of young people who are neither in employment, nor in education and training (NEET) is relatively low except for women, who are affected nearly twice as often as men. At the same time, the disability employment gap widened to 31.2 percentage points (pps) in 2020, while the employment rate of Roma was 25.5 pps below the national average for the population aged 15-64 in the third quarter of 2019 (based on national data). Weaknesses remain in the scope and effectiveness of active labour market policies, particularly in the public works scheme which remains oversized, though gradually decreasing, and seldom helps participants to find employment on the primary labour market. The duration of unemployment benefits is among the shortest in the EU (3 months). EU cohesion policy funds will support measures to strengthen the provision of active labour market policies, with a special focus on young people. Social dialogue in Hungary remains among the weakest in the EU with no progress observed.

Table A12.1: Social Scoreboard for Hungary

Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2021)	12.0
	Individuals' level of digital skills (% of population 16-74) (2021)	49.0
	Youth NEET (% of total population aged 15-29) (2021)	11.7
	Gender employment gap (percentage points) (2021)	10.6
	Income quintile ratio (S80/S20) (ratio) (2020)	4.2
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2021)	78.8
	Unemployment rate (% population aged 15-74) (2021)	4.1
	Long term unemployment (% population aged 15-74) (2021)	1.3
	GDHI per capita growth (2008=100) (2020)	132.8
Social protection and inclusion	At risk of poverty or social exclusion (in %) (2020)	19.4
	At risk of poverty or social exclusion for children (in %) (2020)	21.7
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP) (2020)	44.1
	Disability employment gap (ratio) (2020)	31.2
	Housing cost overburden (% of population) (2020)	4.9
	Children aged less than 3 years in formal childcare of under 3-years-olds (2020)	10.5
	Self-reported unmet need for medical care (% of population 16+) (2020)	0.7
		

(1) Update of 29 April 2022. 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 2022. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

Source: European Commission, Eurostat

Early school leaving, especially among the Roma, and poor performance in basic skills pose significant challenges. Hungary’s early-school-leaving rate is higher than the EU average (12.0% vs 9.7% in 2021; see Annex 13 for further

⁽⁴¹⁾ Data for 2020 could be distorted by COVID-19, because public health measures might have forced some childcare institutions to close temporarily.

analysis). The share of people with at least basic digital skills was 49% in 2021 compared to 54% in the EU. The share of adults participating in adult learning is low, at 5.9% in 2020 compared to 10.8% in the EU, and it is significantly lower among the low-skilled and the unemployed.⁽⁴²⁾ Strengthening the quality and inclusiveness of education and training at all levels is key for helping Hungary to reach the 2030 EU headline targets on skills and employment.

While the share of Hungarians at risk of poverty or social exclusion has decreased in recent years, the depth of poverty increased markedly.

Severe material and social deprivation, although decreasing for the general population, is still one of the highest in the EU (10.7% vs 6.8%) and is especially high among children (16.6% vs 8.3% in the EU). The depth of poverty increased from 16.7% in 2017 to 27.9% in 2020, making it one of the highest in the EU. Households without stable employment also faced declining adequacy in the social safety net over the past decade as the real value of the minimum income fell by 39% since 2010. The impact of social transfers (excluding pensions and in-kind transfers) on reducing poverty is relatively high (44.9% in 2020 vs 32.2% in the EU), it is mainly driven by family benefits during parental leave while the poverty-reducing impact of other benefits is low. There is thus scope for stronger policy action by Hungary to reach the 2030 EU headline target on poverty reduction. To foster equal opportunities and social inclusion, Hungary's RRP plans infrastructure projects targeting the 300 most deprived municipalities, which have a high percentage of children and Roma. These projects will be supported by actions financed by the European Social Fund Plus.

⁽⁴²⁾ According to the Labour Force Survey, the indicator on adult learning participation over the previous four weeks is used in the country report, rather than the indicator on learning over the previous 12 months, as Adult Education Survey (AES) data for the 12-month indicator are only available for 2016 at the moment, while the new Labour Force Survey (LFS) indicator agreed for use in the social scoreboard and as 2030 headline target on skills will only be available in 2023

This Annex outlines the main challenges for Hungary's education and training system in light of the EU-level targets of the European Education Area Strategic Framework and other contextual indicators, based on the analysis from the 2021 Education and Training Monitor. Hungary's education and training system struggles with quality and equity challenges that risk to worsen due to the pandemic. Hungary lags significantly behind the EU average and the EU-level targets in terms of basic skills, early leavers from education and training and tertiary education attainment.

Participation in early-childhood education and care is in line with the EU average, but access is unbalanced, and teacher shortages raise quality issues. In 2020, 32% of settlements had no kindergartens. Access to quality early-childhood education and care is hampered by increasing shortage of pre-school teacher, which a 2020 reform aimed to address by

allowing non fully qualified teaching staff to work with children in the afternoon. This is a serious step backwards in quality standards.

Educational outcomes in Hungary are below the EU average. At the age of 15, mean levels of basic skills are significantly below EU averages, and have even decreased since 2009, with the sharpest declines occurring in science. The share of low-achieving school pupils in Hungary is well above the EU average in all three areas tested. According to the 2019 national survey, the competence level of pupils at grade 10 in vocational secondary schools showed little or no progress compared to their level at grade 8.

The weaknesses in education outcomes are partly due to the reduced general-education content in this type of schools and partly to their disadvantaged school population.

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

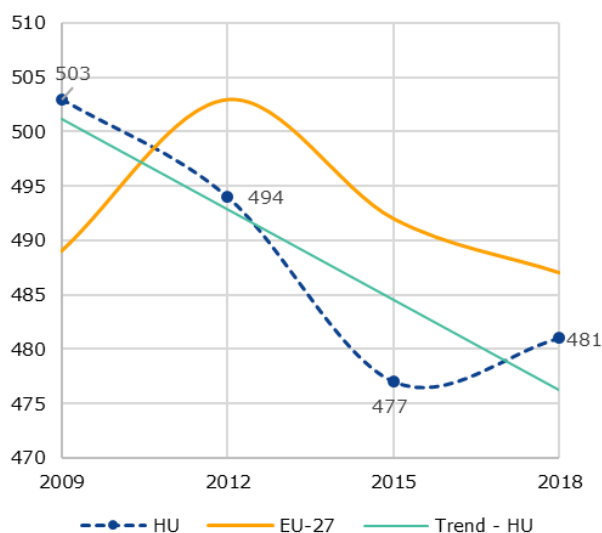
Indicator	Target	2015		2021			
		Hungary	EU27	Hungary	EU27		
Participation in early childhood education (age 3+)	96%	90.7%	91.9%	92.9% ²⁰¹⁹	92.8% ²⁰¹⁹		
Low achieving 15-year-olds in:	Reading	< 15%	27.5%	20.4%	25.3% ²⁰¹⁸	22.5% ²⁰¹⁸	
	Mathematics	< 15%	28.0%	22.2%	25.6% ²⁰¹⁸	22.9% ²⁰¹⁸	
	Science	< 15%	26.0%	21.1%	24.1% ²⁰¹⁸	22.3% ²⁰¹⁸	
Early leavers from education and training (age 18-24)	Total	< 9 %	11.6% ^b	11.0%	12.0%	9.7%	
	By gender	Men		12.0% ^b	12.5%	12.3%	11.4%
		Women		11.2% ^b	9.4%	11.6%	7.9%
	By degree of urbanisation	Cities		6.7% ^b	9.6%	6.1%	8.7%
		Rural areas		15.9% ^b	12.2%	19.1%	10.0%
	By country of birth	Native		11.6% ^b	10.0%	11.8%	8.5%
		EU-born		: ^{b, u}	20.7%	: ^u	21.4%
		Non EU-born		: ^{b, u}	23.4%	: ^u	21.6%
Tertiary educational attainment (age 25-34)	Total	45%	32.1%	36.5%	32.9%	41.2%	
	By gender	Men		26.1%	31.2%	27.0%	35.7%
		Women		38.4%	41.8%	39.2%	46.8%
	By degree of urbanisation	Cities		47.3%	46.2%	53.0%	51.4%
		Rural areas		17.7%	26.9%	16.4%	29.6%
		Native		32.1%	37.7%	32.7%	42.1%
	By country of birth	EU-born		32.4%	32.7%	36.3%	40.7%
		Non EU-born		: ^u	27.0%	43.3%	34.7%
Share of school teachers (ISCED 1-3) who are 50 years or over		37.4%	38.3%	45.0% ²⁰¹⁹	38.9% ²⁰¹⁹		

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

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

Hungary also has the largest urban/rural gap of all OECD countries in education outcomes⁽⁴³⁾, before accounting for socioeconomic status. The low effectiveness and fairness in the school system are likely to be linked to the low level of curricular autonomy, the lack of socioeconomic diversity within schools and low teacher salaries⁽⁴⁴⁾.

Graph A13.1: **Mean science performance**



Source: PISA 2009-2018

Socio-economic background is a strong predictor of pupil performance and there continue to be large differences between schools in Hungary. Schools in Hungary are characterised by the similar socio-economic background of their pupils, with concentrations of disadvantaged pupils in certain schools. A high share of Roma pupils attend segregated primary schools. The gap in pupils' performance between socio-economically advantaged and disadvantaged schools is the largest in the EU (a gap of 169 points in Hungary against an EU-average gap of 137 scores). Performance-based selection in Hungarian schools starts at the age of 10, leading to the separation of underachieving pupils from their high-achieving peers. This, is likely to be a factor in the large share of low performers in Hungary. The 2019 reform cancelled

the option for students in vocational training schools to progress towards the general secondary-school-leaving exam in the formal school system. This, substantially reduced vocational-training-school students' options for further study and careers. Inequality in education reduces the possibility of social mobility: out of all EU countries, low-income families in Hungary have the lowest chances of ever approaching the mean income in their country.

Hungary's early-school-leaving rate remains above the EU average. In 2021, the percentage of early leavers from education and training increased to 12.0%. This percentage is higher in the least developed districts and among Roma (where it is as high as 65.3%). The concentration of disadvantaged pupils in certain schools and school types – especially vocational training schools – and pressing teacher shortages makes it difficult to keep pupils in school and give them the personalised support they need. The distribution of pupils at risk of dropping out varies greatly by school type and region. In the three most affected counties, 10-15% of pupils are at risk of dropping out.

The shortage of teachers in Hungarian schools is increasingly challenging. The teaching workforce is ageing: in 2019, 45.0% of Hungarian teachers were aged 50 or over. Initial teacher education cannot meet the demand for teachers: dropout rates from these courses are high and less than half of graduates from teacher education actually enter the profession. Teacher shortages are the most acute: (i) in disadvantaged areas; (ii) for mathematics, science subjects and foreign languages; and (iii) in VET. These shortages are also partly due the high proportion (49.5%) of small schools in Hungary (with less than 150 pupils). Small schools need to maintain a full teaching staff regardless of the number of children, resulting in the uneven distribution of teachers across the country. Schools with a disadvantaged profile tend to suffer particularly from the lack of qualified teaching staff. Low salaries for teachers are one factor: these are equivalent to only 58%-66% of the salaries of other tertiary education graduates, and even lower for starting teachers (50-55%). In addition, the number of teaching hours per teacher in Hungary is the highest in Europe. In the absence of sufficient support staff, teachers also need to perform non-teaching duties such as after-school care. Moreover, the centralised management of

⁽⁴³⁾ Echazarra, A. and T. Radinger (2019), "Learning in rural schools: Insights from PISA, TALIS and the literature", OECD Education Working Papers, No. 196, <http://dx.doi.org/10.1787/8b1a5cb9-en>

⁽⁴⁴⁾ Education and Training MONITOR 2018, Luxembourg: Publications Office of the European Union, 2018. (<https://ec.europa.eu/education/sites/education/files/document-library-docs/volume-1-2018-education-and-training-monitor-country-analysis.pdf>)

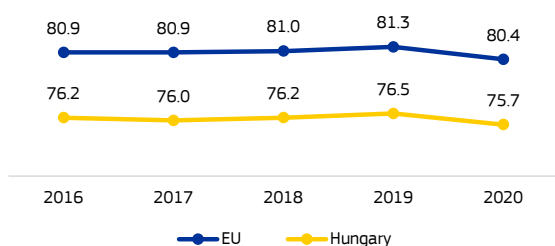
schools leaves school heads with limited autonomy and tools to improve teaching quality.

Participation in higher education is low, resulting in a lack of highly skilled professionals. Hungary has one of the lowest rates of the population aged 25-34 holding a tertiary degree. The employment rate of recent tertiary graduates (88.1%) exceeds the EU average (83.7%). The pool of entrants to tertiary education has been shrinking in recent years, reflecting demographic trends, poor school-education outcomes, and a reduction in state-funded places. The number of applicants to higher education fell from 102 000 in 2011 to 69 000 in 2021 and admissions decreased from 67 000 to 51 000 during this time. Around a third of full-time students pay fees for their education; and this proportion is higher among part-time students. Dropping out remains frequent: more than a third of bachelor's students do not graduate, with dropout rates especially high in IT, engineering and science programmes. The number of new graduates in science and engineering per thousand people aged 25-34 has been decreasing since 2015 and remains below the EU average. The management and financing of most public universities has been entrusted to private trust funds. Important decisions about the universities are made by a newly created board of trustees, whose members are appointed by the government for life. This may raise concerns over academic freedom.

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

Life expectancy in Hungary in 2019 was almost 5 years below the EU average, having fallen by nearly 10 months in 2020 due to COVID-19. As of 17 April 2022, Hungary reported 4.58 cumulative COVID-19 deaths per 1 000 inhabitants and 193 confirmed cumulative COVID-19 cases per 1 000 inhabitants. Before the pandemic, mortality rates from treatable causes were much higher than the EU average. This could point to issues with the quality and accessibility of healthcare services. Partly as a result of the high prevalence of risk factors, cancer mortality in Hungary was the highest in the EU in 2019.

Graph A14.1: Life expectancy at birth, years



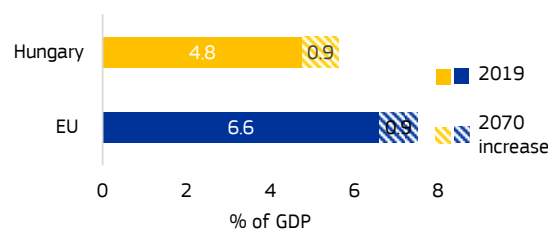
Source: Eurostat

Health spending relative to GDP in Hungary remains well below the EU average. Public funding accounts for two thirds of all health care expenditure. This share is below the EU average and reflects high levels of out-of-pocket spending concentrated on outpatient care and pharmaceuticals. Public expenditure on health is projected to increase by 0.9 percentage points of GDP by 2070, in line with the EU average.

The government has begun to implement measures to alleviate persistent shortage in the healthcare workforce. Shortages of health staff present a chronic challenge. Although the number of physicians and nurses is low, numbers of health graduates increased significantly in recent years. At the same time, the government began implementing policies, including substantial salary increases, to improve the recruitment and retention of healthcare professionals within the public system.

Against this backdrop, certain physician and nursing specialties face more severe shortages. And the uneven geographic distribution of healthcare workers continues to hamper access to care for residents in less-well populated and poorer regions of Hungary. More recently, disruptions to the delivery of health services caused by COVID-19 may have aggravated accessibility challenges, in particular for patient groups requiring chronic disease management and elective surgery. Consumption of antimicrobials in Hungary is lower than the EU average.

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



Source: European Commission/ EPC (2021)

Table A14.1: **Key health indicators**

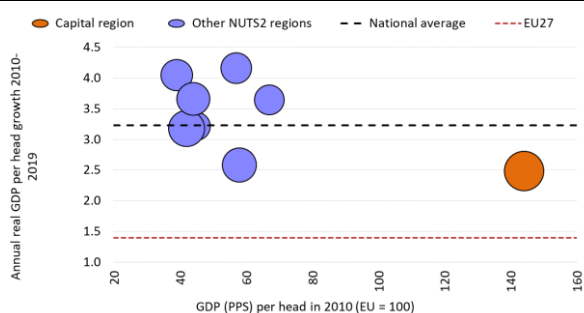
	2016	2017	2018	2019	2020	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	176.0	179.0	175.9			92.0 (2017)
Cancer mortality per 100 000 population	345.3	341.0	335.6			252.5 (2017)
Current expenditure on health, % GDP	7.0	6.8	6.6	6.4		9.9 (2019)
Public share of health expenditure, % of current health expenditure	68.1	68.8	69.9	68.3		79.5 (2018)
Spending on prevention, % of current health expenditure	3.2	3.0	3.1	3.2		2.8 (2018)
Acute care care beds per 100 000 population	427.9	427.1	423.5	420.7		387.4 (2019)
Doctors per 1 000 population *	3.2	3.3	3.4	3.5		3.8 (2018)
Nurses per 1 000 population *	6.4	6.5	6.6	6.6		8.2 (2018)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day **	13.3	13.4	13.7	13.3	10.0	14.5 (2020)

(1) Notes: Doctors' density data refer to practising doctors in all countries except FI, EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries (imputation from year 2014 for FI) except IE, FR, PT, SK (professionally active) and EL (nurses working in hospitals only). More information: https://ec.europa.eu/health/state-health-eu/country-health-profiles_en

Source: Eurostat Database; except: * Eurostat Database and OECD, ** ECDC.

The regional dimension is an important factor when assessing economic and social developments in Member States. Taking into account this dimension enables a well-calibrated and targeted policy response that fosters cohesion and ensures sustainable and resilient economic development across all regions.

Graph A15.1: GDP per capita (2010) and GDP growth (2010-2019) in Hungary

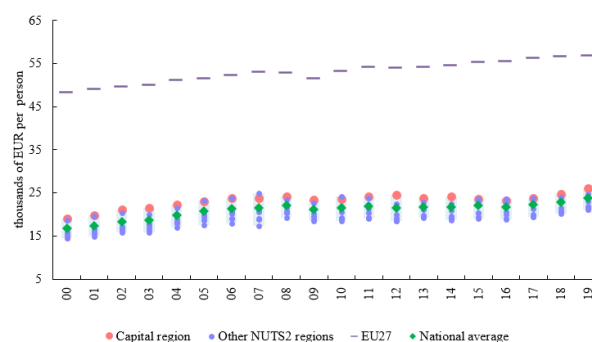


Source: European Commission

Except for the capital region of Budapest, GDP per capita (PPS) in all Hungarian regions remains below 75% of the EU average.

Internal regional disparities continue to be significant, driven by labour productivity gaps between the more developed and the less developed regions of the country. As productivity is the key determinant of economic growth and prosperity over the long term, this gap threatens not only to slow down the country's contribution to the EU's green and digital objectives but also be detrimental to territorial cohesion.

Graph A15.2: Labour productivity, EU-27, Hungary's NUTS 2 regions, 2000-2019



(1) Unit: real GVA in MM EUR (2015 prices) by employment in thousands of persons.

(2) The light red circle shows the capital city region. The blue circles show the remaining NUTS2 regions.

(3) The green diamond shows the national average. The purple line shows the EU27 average.

Source: European Commission

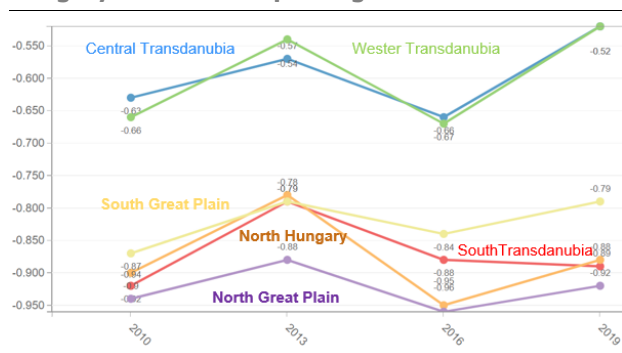
Hungarian regions have been catching up with the rest of the EU since Hungary's accession. However, GDP per head is still only around 50% of the EU average in four regions while it is 151% of the average in the capital region of Budapest. Labour productivity ranges between 58% of the EU average in Észak-Alföld and 71% in Budapest. Territorial disparities between, but also within regions are particularly large at the level of the country's 197 districts (LAU 1). There are 36 districts in different regions characterised by multiple disadvantages, which the Government Regulation 290/2014 classified as 'to be developed through complex programmes'.

Table A15.1: Hungary, selected indicators at regional level

NUTS 2 Region	GDP per head (PPS)	Productivity (GVA (PPS) per person employed)	Real productivity growth	GDP per head growth	Population growth	Unemployment rate	Population with high educational attainment	CO ₂ emissions from fossil fuels per head	Innovation performance
	EU27=100, 2019	EU27=100, 2018	Avg % change on preceding year, 2010-2019	Avg % change on preceding year, 2010-2019	Total % change, 2011-2019	% of active population, 2020	% of population aged 30-34, 2017-2019	tCO ₂ equivalent, 2018	EU27=100
European Union	100	100	1.00	1.39	1.8	7.1	39.4	7.2	100.0
Magyarország	73	66	1.21	3.23	-1.9	4.3	33.1	5.2	67.9
Budapest	151	71	1.08	2.48	1.7	3.3	54.7	4.0	97.6
Pest	58	66	0.84	2.58	7.5	3.3	32.2	6.2	66.0
Közép-Dunántúl	67	65	1.76	4.16	-2.1	2.8	24.6	7.2	57.7
Nyugat-Dunántúl	71	68	1.78	3.64	0.9	2.4	26.0	4.2	54.8
Dél-Dunántúl	50	59	1.33	3.21	-6.8	5.3	24.6	5.1	48.9
Észak-Magyarország	49	63	1.56	4.05	-7.8	5.0	26.4	11.0	49.1
Észak-Alföld	47	58	0.91	3.18	-4.3	7.3	25.5	4.1	50.9
Dél-Alföld	53	60	1.02	3.66	-5.7	4.7	28.4	4.3	57.3

Source: Eurostat, *EDGAR Database.

Graph A15.3: EU Regional Competitiveness Index of Hungary's less developed regions



Source: European Commission

The proportion of these least developed districts is particularly high in some counties in the peripheries. For example 69% of districts in Szabolcs-Szatmár-Bereg, 50% in Borsod-Abaúj-Zemplén (BAZ) and 40% in Hajdú-Bihar is classified as disadvantaged. In contrast, there are no such districts in Nyugat-Dunántúl. The group of 36 least developed districts has remained unchanged since 2014 as the challenges affecting them have proven to be persistent, and there have been no complex programmes implemented to address their problem.

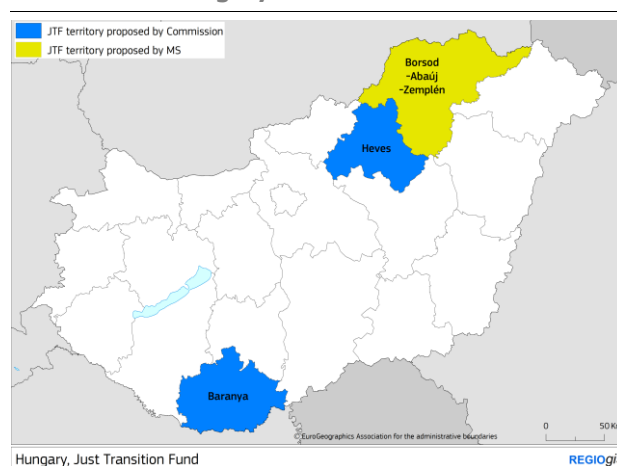
The competitiveness of Hungary's four least developed regions remains low due to infrastructure gaps, deficiencies in human capital (health, education levels) and low labour market efficiency. These handicaps limit the growth potential of the least developed regions. The innovation performance of the capital Budapest stands out and is close to the EU average, while the other regions are only emerging innovators, significantly lagging behind Budapest.

On the digital transition, the uptake of information and communications technology (ICT) is relatively high in Hungary, but regional differences remain. For example, the use of the internet to interact with public authorities varies from 51% in three of the least developed regions to 79% in the capital region. Differences between regions are moderate with regard to the share of households with internet access, while more pronounced regarding mobile broadband access (70% in Budapest against 52.8% in the Dél-Alföld 2021).

On the digital integration of enterprises, regional differences are more stark when taking into account more advanced forms of

ICT usage, such as mobile broadband connection (82% in the capital vs. 72% in the Dél-Alföld), use of cloud services (25, 7% in Közép-Dunántúl, vs. 15% in Észak-Alföld) or the use of industrial and service robots (e.g. 6.1% and 2.6% respectively in Nyugat-Dunántúl, vs. less than 1% in some of the least developed regions) (45).

Graph A15.4: Territories most affected by climate transition in Hungary



Source: European Commission

Several Hungarian regions face challenges in the transition to climate neutrality.

Greenhouse-gas emissions per capita are higher in Hungary than the EU average. Three counties in particular will need to make greater efforts to achieve climate neutrality: Baranya (relying heavily on energy-intensive industries), Heves (which has a coal power plant that is the biggest CO₂ emitter in Hungary and one coal mines) and BAZ (with cities having the highest PM load in Hungary and a crucial lignite mine of the Mátra lignite power plant). Addressing the social and employment impact of the green transition presents a challenge for Hungary.

Indicators relevant for human capital development show strong territorial differences.

Hungary's education system shows significant disparities (46). By the age of 12, there is a five-fold difference between the best and worst performing counties in the skills levels of students (6% in Vas county vs 26% in BAZ). The gap between the best- and worst-performing districts in terms of basic skills is significant and

(45) Source: Hungarian Central Statistical Office

(46) Hungarian Academy of Sciences, 2021 Indicator System of the Hungarian public education (in Hungarian) <https://bit.ly/3klOM2R>

increases by school grade tested (6th, 8th, 10th grade).⁽⁴⁷⁾ Further education indicators throughout school education (e.g. early-school leaving and educational attainment) show similar territorial differences⁽⁴⁸⁾. In addition there is also a strong urban-rural divide, for example the early school leaving rate is 6.8% in cities and 17.9% in rural regions. There are regional disparities in health status as well⁽⁴⁹⁾. There is a pronounced western-eastern, urban-rural and centre-periphery divide in health status of Hungarians. Life expectancy is 5 years higher in Budapest than in the least-developed counties. Medical staff shortages⁽⁵⁰⁾ (especially GPs) and lack of access to quality care contribute to these disadvantages.

The highest unemployment rates are recorded in the less developed regions of Észak-Alföld and Dél-Dunántúl (7.1% and 5.1% respectively). The employment rate is above or near the EU average in all regions. However, there is a 9.1 pp difference between the best- and worst-performing regions outside Budapest. The share of people at risk of poverty or social exclusion is the lowest in Közép-Dunántúl and the highest in Észak-Magyarország, with close to a three-fold difference between these two regions (10.1% vs 28.1% in 2021)⁽⁵¹⁾. Between 2011 and 2020, the population shrunk and there was a negative net migration in the four least developed NUTS 2 regions, while population grew only in the capital and in Nyugat-Dunántúl. As for the effect of the COVID pandemic, the mortality rate was higher in the more developed regions, while socioeconomic consequences differed slightly across regions.

⁽⁴⁷⁾ Source: Oktatási Hivatal, Országos Kompetenciamérés, available at <https://bit.ly/3LLt4ad>

⁽⁴⁸⁾ Source: Hungarian Central Statistical Office, https://www.ksh.hu/thm/2/indi2_2_4.html

⁽⁴⁹⁾ Tóth, G., Bán, A., Vitrai, J. and Uzzoli, A. (2018). Regional Differences in Morbidity and Mortality of Acute Myocardial Infarction. *Területi Statisztika* 58, 346-379. Available at <https://bit.ly/3kIXiyO>

⁽⁵⁰⁾ OECD (2021). State of Health in the EU: Hungary Country Health Profile 2021. Available at <https://bit.ly/3sh2D4A>

⁽⁵¹⁾ Source: Hungarian Central Statistical Office, https://www.ksh.hu/stadat_files/ele/hu/ele0017.html

This Annex provides an overview of key developments in Hungary's financial sector.

Banks remain the heavyweights of Hungary's domestic financial sector. Total banking sector assets accounted for 112.1% of GDP in Q3 2021. The five largest banks in Hungary own about 50.1% of total banking sector assets. The domestic ownership of local lenders fluctuated substantially over the past decade and reached 58.6% in Q3 2021. The market-funding ratio was rather low at 35.7% in 2020, as bank loans remain by far the most significant form of financing for most companies. The issuance of green bonds started in 2020, while the central bank has launched some initiatives to integrate environmental aspects into financing.

The Hungarian banking system is stable and resilient.

The bank solvency ratio has remained stable since 2018, at 18.2% in Q3 2021 (vs 19.3% in the EU). Banking sector profitability is among the highest in the EU with a return on equity of 14.1% in Q3 2021. Asset quality has improved for both corporates and households with the non-performing loans ratio declining to 3% in Q3 2021 (vs 2.1% in the EU). The cost-to-income-ratio has steadily declined since 2017. Banks have also benefitted from abundant central bank liquidity, which stood at roughly 9.5% of total liabilities in 2020.

The macroeconomic environment creates challenges for banks in 2022.

(i) Funding costs have increased due to rising inflation, monetary tightening, and Russia's invasion of Ukraine. As Russian and Ukrainian financial markets were frozen, foreign investors sold Hungarian assets in larger quantities to reduce their overall exposure to the region. This led to strong currency depreciation and yield increases. Until June 2022 nearly 500 thousand mortgage borrowers with flexible rates can pay their instalments according to the interest rate applicable on 27 October 2021. Since then, the 3-month interbank rate rose from 2% to some 6.8%, thus the temporary cap on mortgage rates depresses the interest margin of banks. (ii) Following the expiration of the cap on mortgage rates and the simultaneous phase out of the COVID-19-related moratoria for vulnerable borrowers, the interest margins of banks can recover but the volume of non-performing loans could also increase. (iii) Due to rising yields, banks also face losses on their large government bond

portfolio, which amounted to 15.7% of banking sector assets in March 2022. (iv) A medium-sized Hungarian bank that was ultimately owned by a sanctioned Russian bank failed in March 2022. Following the reimbursement of depositors for HUF 142 bn, the deposit insurance fund will require recapitalisation by commercial banks, weighing on their profitability. (v) Some Hungarian banks have Russian and Ukrainian exposures either directly or through their parent companies. While this does not create systemic risk for the Hungarian financial system, it might affect the banking sector's profitability and capital situation. According to May 2022 bank lending survey of the Hungarian central bank, banks planned to tighten lending conditions in response to these challenges, and they already expected credit demand to weaken in 2022 ⁽⁵²⁾.

Hungary's residential real estate market exhibits medium-term vulnerabilities.

The European Systemic Risk Board (2022) ⁽⁵³⁾ identified several vulnerabilities in Hungary's housing market, such as: (i) signs of house-price overvaluation; (ii) elevated house-price growth; (iii) high levels of mortgage credit growth; and (iv) fast growth in household indebtedness.

Year-to-year growth in real house prices was close to or even above 10% between 2015 and 2019.

Growth in lending to households reached 15.2% in Q3 2021, one of the highest growth rates in the EU. The ESRB warns that the current policy mix in Hungary is partially appropriate and partially sufficient in mitigating risks. It suggested tightening Hungary's debt-service-to-income limit, accompanied by maturity limits and/or introducing a sectoral systemic risk buffer and a countercyclical capital buffer. Policy adjustments might also be warranted as government house subsidies and support loans could have contributed to increasing the overvaluation of prices and household indebtedness.

⁽⁵²⁾ <https://bit.ly/3w87YfE>

⁽⁵³⁾ <https://bit.ly/3iHVEfV> (pp 102-105)

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

	2017	2018	2019	2020	2021
Total assets of the banking sector (% of GDP)	95.4	92.6	91.2	108.3	112.1
Share (total assets) of the five largest bank (%)	49.6	50.0	52.7	50.1	-
Share (total assets) of domestic credit institutions (%)¹	53.7	52.8	57.1	57.8	58.6
Financial soundness indicators:¹					
- non-performing loans (% of total loans)	8.4	5.4	4.2	3.6	3.0
- capital adequacy ratio (%)	16.2	18.5	18.0	18.3	18.2
- return on equity (%)	14.5	14.7	14.3	7.6	14.1
NFC credit growth (year-on-year % change)	10.2	13.6	14.1	8.9	10.6
HH credit growth (year-on-year % change)	2.6	7.3	16.6	14.3	15.2
Cost-to-income ratio (%)¹	64.4	63.9	64.7	61.0	57.2
Loan-to-deposit ratio (%)¹	71.8	72.7	76.0	74.4	74.9
Central bank liquidity as % of liabilities	3.9	2.8	3.6	9.5	-
Private sector debt (% of GDP)	69.9	68.7	67.1	76.4	-
Long-term interest rate spread versus Bund (basis points)	264.5	266.2	271.8	273.4	343.4
Market funding ratio (%)	35.2	33.1	32.5	35.7	-
Green bond issuance (bn EUR)	-	-	-	1.9	0.8

(1) Last data: Q3 2021

Source: ECB, Eurostat, Refinitiv

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

Hungary's tax revenues are below the EU average, with a relatively heavy and increasing reliance on consumption taxes and a relatively low and decreasing reliance on labour taxes. A series of tax reforms since 2010 has left total tax revenue as a share of GDP broadly stable (at 36.3% in 2020 as compared to 36.8% in 2010) but shifted taxation from labour and capital to consumption. Revenues from labour taxation were reduced by the introduction of the flat tax in 2011 (currently at 15%), cuts to social security contributions, and an extension of the family tax credit.

Revenue from capital taxation have also decreased as the corporate income tax rate was reduced from 19% to 9%. In turn, revenue from consumption taxes increased from 12.4% of

GDP in 2010 to 14.1% in 2020 as VAT was increased to 27% in 2012 and a series of sectoral consumption-related taxes were introduced. While revenue from environmental taxation is at the EU average (at 2.2% of GDP in 2020), recurrent property taxation remains relatively low (at 0.4% of GDP in 2020 compared to the EU average of 1.2%).

The tax burden of low earners without children has decreased in recent years. However, the labour tax wedge for Hungary in 2020 was higher than the EU average at lower income levels. The labour tax wedge at high earnings (at 167% of the average wage) also decreased and is close to the EU average.

Second earners at a wage level of 67% of the average wage, whose spouse earns the average wage, also face a higher tax wedge compared to the EU average. The ability of the Hungarian tax and benefits system to reduce inequalities (measured by its ability to reduce the Gini coefficient) decreased from comparatively high levels in 2010 to below the EU average in 2020.

Table A17.1: Indicators on taxation (**)

		Hungary					EU-27				
		2010	2018	2019	2020	2021	2010	2018	2019	2020	2021
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	36.8	36.9	36.4	36.3		37.9	40.1	39.9	40.1	
	Labour taxes (as % of GDP)	17.3	16.9	16.7	16.3		20.0	20.7	20.7	21.5	
	Consumption taxes (as % of GDP)	12.4	14.1	13.9	14.1		10.8	11.1	11.1	10.8	
	Capital taxes (as % of GDP)	7.1	5.9	5.8	5.9		7.1	8.2	8.1	7.9	
	Total property taxes (as % of GDP)	1.1	1.0	1.0	1.1		1.9	2.2	2.2	2.3	
	Recurrent taxes on immovable property (as % of GDP)	0.3	0.5	0.4	0.4		1.1	1.2	1.2	1.2	
	Environmental taxes as % of GDP	2.6	2.3	2.3	2.2		2.4	2.4	2.4	2.2	
Progressivity & fairness	Tax wedge at 50% of Average Wage (Single person) (*)	41.0	45.0	44.6	43.6	43.2	33.9	32.4	32.0	31.5	31.9
	Tax wedge at 100% of Average Wage (Single person) (*)	46.6	45.0	44.6	43.6	43.2	41.0	40.2	40.1	39.9	39.7
	Corporate Income Tax - Effective Average Tax rates (1) (*)		10.2	10.2	10.2			19.8	19.5	19.3	
	Difference in GINI coefficient before and after taxes and cash social transfers (pensions excluded from social transfers)	12.5	7.5	6.5	7.6		8.4	7.9	7.4	8.3	
Tax administration & compliance	Outstanding tax arrears: Total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		13.8	12.5				31.9	31.8		
	VAT Gap (% of VTTL)		8.9	9.6				11.2	10.5		
Financial Activity Risk	Dividends, Interests and Royalties (paid and received) as a share of GDP (%)		5.9	6.4	6.4			10.7	10.5		
	FDI flows through SPEs (Special Purpose Entities), % of total FDI flows (in and out)		57.4	69.9	77.9			47.8	46.2	36.7	

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

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

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

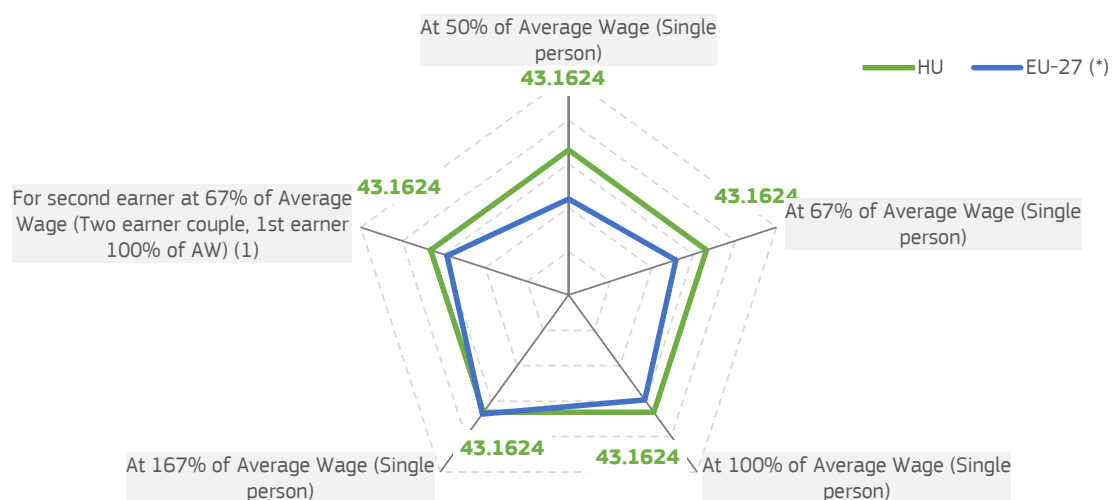
Source: European Commission, Eurostat, OECD

Hungary is doing relatively well on digitalisation of the tax administration, which can help reduce tax arrears and cut compliance costs. Outstanding tax arrears declined by 1.3 percentage points to 12.5% of total net revenue in 2019. This is considerably below the EU27 average of 31.8%, though that average is inflated by very large values in a few Member States. Thanks to its mandatory e-administration system, Hungary delivers moderately well in e-services. Its progress on verification and compliance management (e.g. e-audits) improved as a result of the circumstances created by COVID-19. The VAT gap (an indicator of the effectiveness of VAT enforcement and compliance) in 2019 was approximately 9.6% of the total VAT liability, which was lower than the EU average, but showed a slight increase compared to 2018. Large flows of foreign direct investments through special purpose entities indicate that Hungary is possibly being used by companies to engage in aggressive

tax planning.

Graph A17.1: Indicators on tax wedge (**)

Tax wedge 2021 (%)



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

(2) The second earner average tax wedge measures how much extra personal income tax (PIT) plus employee and employer social security contributions (SSCs) the family will have to pay as a result of the second earner entering employment, as a proportion of the second earner's gross earnings plus the employer SSCs due on the second earner's income. For a more detailed discussion see OECD (2016), Taxing Wages 2016, OECD Publishing, Paris. http://dx.doi.org/10.1787/tax_wages-2016-en

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

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

Source: European Commission

ANNEX 18: KEY ECONOMIC AND FINANCIAL INDICATORS

Table A18.1: Key economic and financial indicators

	2004-07	2008-12	2013-18	2019	2020	2021	forecast	
							2022	2023
Real GDP (y-o-y)	3.4	-0.8	3.6	4.6	-4.5	7.1	3.6	2.6
Potential growth (y-o-y)	3.3	0.5	2.2	4.2	3.3	3.3	4.0	3.1
Private consumption (y-o-y)	1.9	-2.2	3.5	5.0	-1.2	4.6	4.8	2.5
Public consumption (y-o-y)	0.1	0.5	2.6	4.3	-0.9	3.7	-0.5	0.0
Gross fixed capital formation (y-o-y)	4.2	-4.4	8.2	12.8	-7.0	5.9	0.9	1.2
Exports of goods and services (y-o-y)	16.6	2.1	6.0	5.4	-6.1	10.3	4.9	5.9
Imports of goods and services (y-o-y)	13.8	0.1	6.6	8.2	-4.0	8.7	3.8	4.6
Contribution to GDP growth:								
Domestic demand (y-o-y)	2.0	-2.0	4.0	6.5	-2.6	4.6	2.5	1.5
Inventories (y-o-y)	0.0	-0.4	-0.4	0.1	0.0	1.1	0.1	0.0
Net exports (y-o-y)	1.3	1.6	-0.1	-2.0	-1.8	1.4	1.0	1.0
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	-0.6	-0.2	1.0	0.9	0.6	0.6	1.5	0.8
Capital accumulation (y-o-y)	1.4	0.6	0.9	1.9	1.4	1.5	1.4	1.3
Total factor productivity (y-o-y)	2.4	0.1	0.3	1.4	1.3	1.2	1.1	1.1
Output gap	3.0	-3.2	0.5	4.1	-3.7	-0.2	-0.5	-1.1
Unemployment rate	6.9	9.9	6.1	3.3	4.1	4.1	3.8	4.0
GDP deflator (y-o-y)	4.2	3.3	3.2	4.8	6.3	6.9	5.6	4.6
Harmonised index of consumer prices (HICP, y-o-y)	5.5	4.9	1.2	3.4	3.4	5.2	9.0	4.1
Nominal compensation per employee (y-o-y)	7.9	2.5	3.1	6.9	3.0	9.2	8.7	6.5
Labour productivity (real, hours worked, y-o-y)	4.8	0.4	1.0	3.9	0.4	2.5	-0.3	2.4
Unit labour costs (ULC, whole economy, y-o-y)	4.0	2.6	2.2	3.4	6.6	4.0	6.7	4.5
Real unit labour costs (y-o-y)	-0.2	-0.6	-1.0	-1.3	0.3	-2.7	1.0	-0.1
Real effective exchange rate (ULC, y-o-y)	3.0	-2.4	-0.5	-1.7	.	.	.	.
Real effective exchange rate (HICP, y-o-y)	3.1	-0.8	-0.9	-0.8	-3.7	0.4	.	.
Net savings rate of households (net saving as percentage of net disposable income)								
	6.3	5.2	7.9	10.5	11.0	.	.	.
Private credit flow, consolidated (% of GDP)	13.0	0.8	-0.3	3.9	7.7	11.6	.	.
Private sector debt, consolidated (% of GDP)	82.0	110.4	81.0	67.1	76.1	78.4	.	.
of which household debt, consolidated (% of GDP)	24.9	36.5	21.9	18.4	20.7	20.7	.	.
of which non-financial corporate debt, consolidated (% of GDP)	57.1	73.9	59.1	48.7	55.3	57.7	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	.	9.8	.	.	.	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-3.4	1.5	1.8	-1.9	2.8	-1.3	-3.7	-2.6
Corporations, gross operating surplus (% of GDP)	22.5	23.1	24.9	24.2	24.1	25.2	23.8	24.2
Households, net lending (+) or net borrowing (-) (% of GDP)	1.9	2.9	4.8	5.1	5.6	7.7	6.3	6.7
Deflated house price index (y-o-y)	.	-6.7	6.9	11.8	1.6	.	.	.
Residential investment (% of GDP)	4.4	3.1	2.3	3.2	4.1	3.7	.	.
Current account balance (% of GDP), balance of payments	-7.7	-1.1	2.3	-0.7	-1.0	-2.9	-5.5	-3.6
Trade balance (% of GDP), balance of payments	-1.2	4.5	6.8	2.3	2.1	0.8	.	.
Terms of trade of goods and services (y-o-y)	-0.7	-0.5	0.2	0.3	2.0	-3.1	-3.8	0.7
Capital account balance (% of GDP)	0.5	1.9	2.5	1.9	2.0	2.5	.	.
Net international investment position (% of GDP)	-92.1	-102.9	-65.6	-49.1	-48.9	-44.8	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (1)	-30.9	-48.2	-17.9	-2.6	-2.6	-1.6	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	75.2	111.5	74.5	55.5	63.9	65.2	.	.
Export performance vs. advanced countries (% change over 5 years)	47.0	10.2	-5.0	3.4	8.7	.	.	.
Export market share, goods and services (y-o-y)	4.9	-5.2	1.6	1.2	3.2	0.3	0.2	1.6
Net FDI flows (% of GDP)	-2.4	-1.7	-1.9	-0.2	-1.9	-1.3	.	.
General government balance (% of GDP)	-7.2	-4.1	-2.3	-2.1	-7.8	-6.8	-6.0	-4.9
Structural budget balance (% of GDP)	.	.	-2.6	-3.8	-6.2	-6.6	-5.8	-4.4
General government gross debt (% of GDP)	62.3	77.6	74.2	65.5	79.6	76.8	76.4	76.1

(1) NIIP excluding direct investment and portfolio equity shares.

(2) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

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

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

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

Graph 1 shows four alternative scenarios around the baseline, to illustrate the impact of changes in assumptions. The ‘historical SPB’ scenario assumes that the structural primary balance (SPB) gradually returns to its past average level. In the ‘lower SPB’ scenario, the SPB is permanently weaker than in the baseline. The

‘adverse interest-growth rate’ scenario assumes a less favourable snowball effect than in the baseline. In the ‘financial stress’ scenario, the country temporarily faces higher market interest rates in 2022.

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

Table 2 shows the S1 and S2 fiscal sustainability indicators and their main drivers. S1 measures the consolidation effort needed to bring debt to 60% of GDP in 15 years. S2 measures the consolidation effort required to stabilise debt over an infinite horizon. The *initial budgetary position* measures the effort required to cover future interest payments, the *ageing costs* component accounts for the need to absorb the projected change in ageing-related public expenditure such as pensions, health care and

Table A19.1: Debt sustainability analysis for Hungary

Table 1. Baseline debt projections	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Gross debt ratio (% of GDP)	65.5	79.6	76.8	76.4	76.1	74.9	73.4	72.2	72.4	72.1	71.9	72.0	72.3	72.8
Change in debt	-3.6	14.1	-2.8	-0.4	-0.3	-1.2	-1.5	-1.2	0.2	-0.3	-0.1	0.0	0.3	0.5
of which														
Primary deficit	-0.1	5.5	4.4	3.3	1.9	1.6	1.1	0.9	1.2	1.1	1.1	1.1	1.2	1.3
Snowball effect	-3.8	1.4	-7.7	-3.9	-2.2	-2.8	-2.6	-2.0	-1.0	-1.5	-1.2	-1.1	-0.9	-0.7
Stock-flow adjustment	0.3	7.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	18.1	27.1	19.1	17.5	17.2	17.1	16.6	16.3	16.7	16.8	16.9	17.1	17.4	17.6

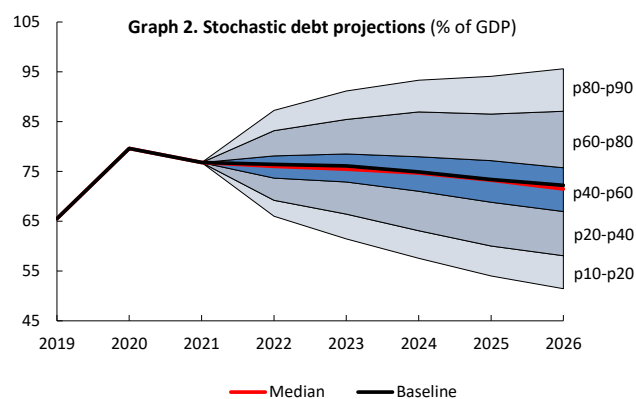
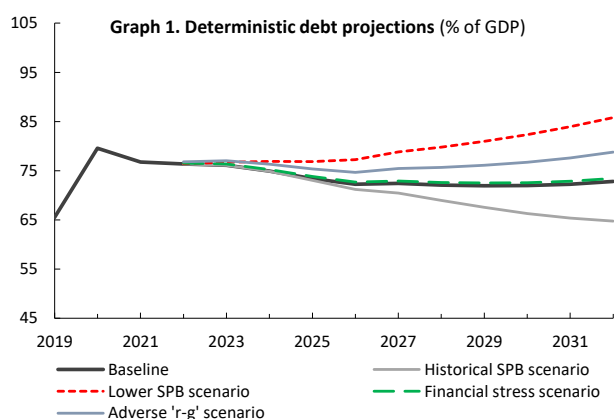


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

	S1	S2
Overall index (pps. of GDP)	1.9	6.3
of which		
Initial budgetary position	0.7	1.8
Debt requirement	1.1	
Ageing costs	0.0	4.5
of which		
Pensions	-0.1	3.2
Health care	0.2	0.7
Long-term care	0.1	0.6
Others	-0.2	0.0

Source: European Commission

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

Short term		Medium term						Long term				
Overall (S0)	Overall (S1+DSA)	S1	Debt sustainability analysis (DSA)					S2	Overall (S2+DSA)			
			Overall	Deterministic scenarios						Stochastic projections		
				Baseline	Historical SPB	Lower SPB	Adverse 'r-g'				Financial stress	
LOW	MEDIUM	MEDIUM	MEDIUM	Overall	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	HIGH
				Debt level (2032), % GDP	73	65	86	79	73			
				Debt peak year	2021	2021	2032	2032	2021			
				Fiscal consolidation space	66%	58%	72%	66%	66%			
				Probability of debt ratio exceeding in 2026 its 2021 level					38%			
Difference between 90th and 10th percentiles (pps. GDP)					44							

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

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

long-term care, and the *debt requirement* measures the additional adjustment needed to reach the 60% of GDP debt target.

Finally, the heat map presents the overall fiscal sustainability risk classification

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

Overall, short-term risks to fiscal sustainability are low. The Commission’s early-detection indicator (S0) does not signal major short-term fiscal risks (Table 19.2).

Medium-term risks to fiscal sustainability are medium. The two elements of the Commission’s medium-term analysis lead to this conclusion. First, the debt sustainability analysis (DSA) shows that government debt is projected to only slightly decline from around 76% in 2022 to about 73% of GDP in 2032 in the baseline (Table 1). This debt path is also sensitive to

possible shocks to fiscal, macroeconomic and financial variables, as illustrated by alternative scenarios and stochastic simulations (Graphs 1 and 2). Moreover, the sustainability gap indicator S1 signals that an adjustment of 1.9 pps. of GDP of the structural primary balance would be needed to reduce debt to 60% of GDP in 15 years’ time (Table 2). Overall, the medium risk reflects the initial budgetary position, the current debt level and the high uncertainty surrounding the projections.

Long-term risks to fiscal sustainability are high. The sustainability gap indicator S2 (at 6.3 pps. of GDP) points to high risks, while the DSA points to medium risks, leading overall to a high risk assessment. The S2 indicator suggests that, to stabilise debt over the long term, it will be necessary to address budgetary pressures from population ageing, especially from public pension expenditure and health care (Table 2).