

Sustainable Catching-Up Requires a Complete Turn in Competitiveness

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SUMMARY

Further strengthening of competitiveness is essential for Hungary's sustainable growth and catching up. According to the Magyar Nemzeti Bank's approach, an economy is competitive if it utilises its available resources optimally to attain the highest possible, but at the same time sustainable, level of welfare. In the past decade, the macroeconomic conditions necessary for a turn in competitiveness have developed in Hungary, which also provided a stable basis for managing the economic impact of the coronavirus pandemic. Hungary was ranked 18th in the MNB's competitiveness ranking among the 27 countries of the European Union in 2021. The result shows that further strengthening competitiveness and the effective release of growth reserves, in particular in the areas of high-quality human capital and the digital and green transition of the economy, are essential to achieve sustainable catching-up and avoid the middle-income trap.

KEYWORDS: competitiveness, sustainable convergence, middle-income trap, growth reserves, green and digital transition

JEL CODES: H12, I15, I25, J11, O10, O40, Q56

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Competitiveness is one of the most frequently used economic terms of our days, which can be heard more and more often in public discourse, too, in addition to economic thinking and economic policy decision-making. Although thinking about competitiveness has been continuous since the 1970s, its definition and measuring are not uniform. Competitiveness has been defined in a number of ways, and the definitions are basically determined by the viewpoints and the focuses of the examinations conducted by the creators of definitions. Competitiveness can be interpreted at corporate, sectoral, and national economy level. Now we are going to discuss competitiveness at the level of the national economy. Our study presents the significance of competitiveness and the major international rankings, and – on the basis of the Competitiveness Report of the Magyar Nemzeti Bank – summarises the current competitiveness position of Hungary and the possibilities of making a progress. The utilisation of these points may contribute to sustainable convergence.

THE CONCEPT OF COMPETITIVENESS AND ITS SIGNIFICANCE IN AVOIDING THE MIDDLE-INCOME TRAP

There is no generally accepted definition for the concept of national competitiveness, as it has a number of definitions and measuring methods. According to the classical approach, the competitiveness of a national economy means the export market share of the country and the changes in that. In the 1990s, the research on competitiveness was conducted with a business and management approach, too, which is associated with *Porter* (Somogyi, 2009). According to *Porter* (1990), ‘the only meaningful concept of competitiveness at the national level is the national productivity’. The key objective of nations is to ensure a high and

growing standard of living, which depends on productivity. In order to increase productivity, companies have to improve the quality of their products, the technology and efficiency.

Several organisations have created definitions for competitiveness, and these have changed over the years. One example of the latter is the World Economic Forum (WEF), which earlier defined competitiveness as the ability of a country to achieve the constantly high growth of GDP per capita (Siudek–Zawojka, 2014). Nowadays, however, a new definition is used: competitiveness is the set of institutions, policies, and factors that determine the level of productivity of a country (WEF, 2016). According to the OECD, competitiveness is a measure of a country’s advantage or disadvantage in selling its products and services in international markets while increasing the standard of living (Somogyi, 2009). Based on the International Institute for Management Development (IMD), competitiveness determines how countries, regions and companies manage their competencies for long-term growth, the creation of jobs and increasing welfare. So, competitiveness is the process of development, and it does not create winners and losers¹. According to the European Commission, a competitive economy is characterised by permanently high growth in productivity. In order to be competitive, the EU has to outperform its competitors in terms of research and innovation, information technologies, enterprise and education (Kharlamova-Vertelieva, 2013).

It is clear from the above definitions that competitiveness is a complex concept, which goes beyond the narrowly interpreted macro economy and the basic factors of production. The majority of definitions also highlight the ability to grow and reach a high standard of living, the importance of productivity, the competition in international markets and the relative nature of the concept.

The analysis of competitiveness is of key importance for the Magyar Nemzeti Bank (MNB), too, because that determines the long-term growth potential of the economy. In its work related to competitiveness, the MNB uses the following definitions: ‘Competitiveness means the level of all factors that determine the long-term performance of the economy, including, inter alia, productivity, the quantity and quality of human resources, technological progress, the regulatory environment, entrepreneurial attitude, financing possibilities and social and environmental sustainability.’ According to the MNB’s approach, a national economy is competitive if it utilises its available resources optimally to attain the highest possible, but at the same time sustainable, level of welfare (MNB, 2021).

Over the past decades, the stable macro-economic conditions required for the turn in competitiveness have been created in Hungary, as the budgetary reforms of 2010 and the monetary policy reforms of 2013 set the country on a balanced convergence path. With the achievement of economic balance and growth at the same time, the period of 2010–2019 was the most successful decade in the 100 years after the Treaty of Trianon (Matolcsy, 2020a). Our growth exceeded the EU average by 2 percentage points in average and the Visegrád average by over a half percentage point from 2013 to 2019. Our development level was 76 per cent of the EU in 2021, which meant a catching-up of 10 percentage points since 2010. Owing to the favourable foundations, our convergence has continued in spite of the global crisis caused by the pandemic.

Over the past decades, our relative development was higher than the average of EU countries, but several countries – e.g. the Baltic states, Poland – showed an even faster growth (*Figure 1*). The good country examples and our development potential may allow

us to reach the current average development level of the EU-27 by 2030. For that, we need an extra growth of 3–4 percentage points on average in the following years. According to the MNB, steady growth and convergence in Hungary require further improvement in competitiveness, and a complete turn in competitiveness, which may lead us out of the middle-income trap (MNB, 2018).

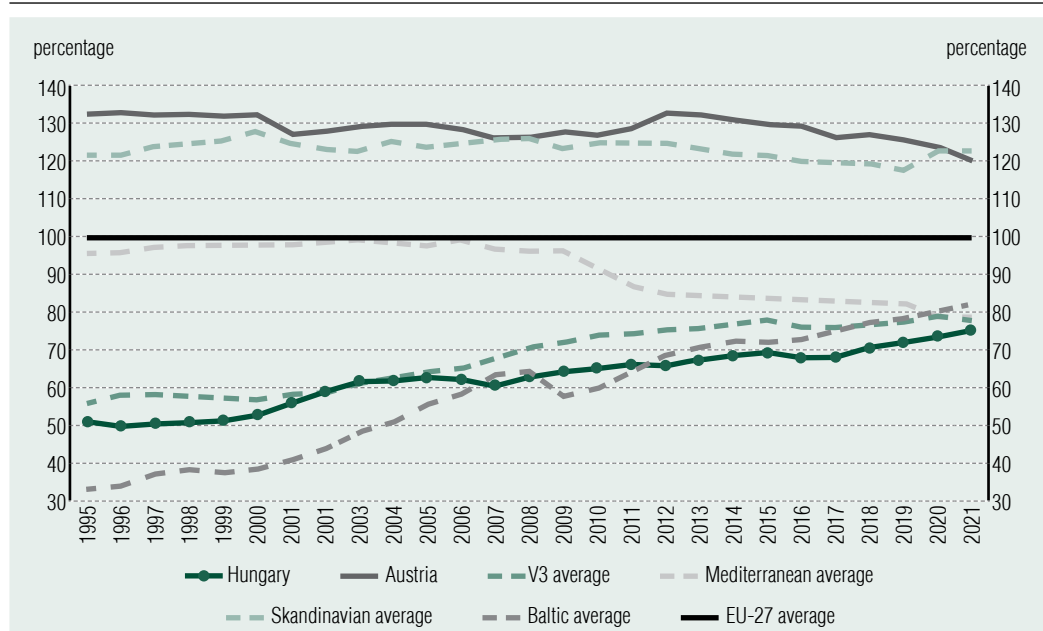
The middle-income trap means the status when previously dynamically growing countries reach the middle-income level, and then slow down or come to a halt. Consequently, they are not able to move to a higher income category and lose some of their initial competitiveness. Based on *Agénor-Canutoa* (2012), countries stuck in middle-income position are characterised by the fact that the factors and benefits (cheap labour, copying foreign technologies), which caused the initial growth, will disappear, or be exhausted in later stages of development. *Eichengreen et al.* (2011) say that the primary reason for slower growth is a decline in the growth of productivity, as the deceleration of output is caused in 85 per cent by the reduction in the total factor productivity (TFP).

Experience shows that it is hard to get into the club of the countries with the highest incomes. According to the World Bank (2013), from the countries with middle incomes in 1960, only 13 reached a higher income level. Upward movement has been seen mainly in the East Asian Tigers (Hong Kong, South Korea, Singapore and Taiwan) over the past decades. From the European countries, Ireland, Finland and Austria were successful in catching up (*Figure 2*).

The group of countries leaving the middle-income trap can be considered heterogeneous, and there is no universal recipe for catching up, but certain factors may help. The highly qualified human capital, the significant high-tech sector, the openness of the economy

Figure 1

GDP PER CAPITA IN HUNGARY AND A FEW COUNTRY GROUPS COMPARED TO THE EU AVERAGE



Source: Eurostat

(Eicherengen et al., 2011 and 2013), as well as the advanced infrastructure and the adequate institutional environment can help the breakout from the trap (Agénor-Canuto, 2012). Agénor (2017) emphasizes the high-quality education system and the support of innovation, too. We can also observe that the high-growth periods of countries successfully catching up usually came when the population was growing (MNB, 2018).

In the case of East Asian countries in the process of catching up, we should highlight the development policies of the states. The Asian countries introduced economic development programmes, tax benefits, founded industrial parks, and carried out targeted industry and export developments. Their growth was significantly facilitated by the fast extension of the labour force, the efficient education policy, the large volumes of physical capital and high

productivity. In the three EU countries that have been successful in catching up, development took place with less state intervention. In the case of Austria, the economic policy based on compromises between political parties and business groups, the economic openness and the close connections with Germany should be pointed out. The success of Finland was primarily facilitated by focusing on knowledge- and technology-driven sectors and the significant development of education, while in the case of Ireland the extension of net exports and foreign direct investment helped a lot (Palotai-Virág, 2016). The development of Ireland was also supported by the reform of the education system starting in the 1960s and the increased spending on education (Foxley-Sossdorf, 2011).

According to experience in economic history, the essential conditions of competitive

Figure 2

CHANGES IN ECONOMIC DEVELOPMENT FROM 1970 TO 2019



Source: MNB calculation based on PWT

growth are solid foundations, such as a stable macro-economy, a growth-supporting financial intermediary system, the efficient operation of the state, the adequate infrastructure, the favourable demographic processes, the strong domestic corporate sector, the flexible labour market and the high-quality education and healthcare. However, significant growth is not sufficient on its own, since by improving competitiveness, sustainable development also must be given priority, considering social and environmental aspects, too (MNB, 2021).

MEASURING COMPETITIVENESS AND THE MOST IMPORTANT RANKINGS

Similarly to the case of definitions, the measuring of competitiveness is not uniform. Competitiveness rankings usually use

composite indexes produced from multiple indicators, and they wish to give a comparable picture of the relative competitiveness of countries. The MNB considers it a basic expectation that rankings should be comprehensive and objective. An assessment is considered comprehensive if it uses a wide range of indicators and covers all the key areas of competitiveness, while objectivity is achieved if mainly factual data is used. Based on these two considerations, the competitiveness rankings have a wide range (Table 1) (Csomós et al., 2020).

The Global Competitiveness Index of the World Economic Forum is one of the best-known competitiveness rankings in the world. The WEF assesses the competitiveness of 141 countries in 12 pillars, using 103 indicators, from which 43 per cent can be considered objective. The analysis is global and

Table 1

COMPARISON OF THE MOST IMPORTANT INTERNATIONAL COMPETITIVENESS RANKINGS AND THE MNB COMPETITIVENESS INDEX

	Number of countries	Number of indicators	Proportion of objective indicators (%)	The latest ranking of Hungary	Comprehensive	Objective	Global
WEF – Global Competitiveness Index	141	103	43	47.	✓	✗	✓
IMD – World Competitiveness Ranking	64	255	64	42.	✓	✓	✗
Harvard – Economic Complexity Index	133	2	100	10.	✗	✓	✓
World Bank – Doing Business	190	41	100	52.	✗	✓	✓
MNB Competitiveness Index	27	159	95	18.	✓	✓	✗

Source: MNB collection

comprehensive enough, but the significant weight of subjective indicators based on assessment resulted in limited objectivity. In 2018, with the increased share of objective indicators, the place of Hungary improved by 12 positions (Csomós et al., 2020). Based on the last GCI of 2019, Hungary ranked 47th, it had the highest score in macroeconomic stability, and the lowest in the pillar of innovation abilities (WEF, 2019).

The World Competitiveness Ranking produced by the International Institute for Management Development is comprehensive and objective but examines 64 countries only. The IMD uses 255 indicators grouped into four pillars (economic performance, business efficiency, government efficiency, infrastructure), two-thirds of which are based on objective, and one third on subjective surveys. Hungary ranked 42nd in the ranking of 2021. We achieved the best position (8th) in the economic performance pillar, and the

worst (56th) in business efficiency (IMD, 2021).

Among the international rankings examined by the MNB, it is the Economic Complexity Index where Hungary has achieved the best positions for years. The indicator of Harvard University wishes to capture the knowledge capital that is present in the countries, based on embeddedness in world trade and the unique nature of products created. This way the index consists of two indicators, it is completely objective and examines a high enough number of countries (133), so it can be considered global. However, the indicator is not comprehensive, as it examines a narrow area of competitiveness. Since 2010, Hungary has been among the 10 best-performing countries in the world, and it ranked 10th again in the latest analysis of 2019 (Hausmann, 2020).

The Doing Business, produced by the World Bank, was among the major competitiveness

rankings until it was terminated in 2021 because some irregularities were found in the assessment process in the publication (World Bank, 2021). The Doing Business analysis had a narrower focus, as it examined the corporate environment. The analysis examined 41 objective indicators and 190 countries. In the last analysis produced in 2020, Hungary ranked 52nd (World Bank, 2020).

In addition to the above, many other international rankings measure competitiveness. From the aspect of environmental and social sustainability, relevant analyses are, for example, the WEF's Inclusive Development Index (IDI) and the UN's Human Development Index (HDI), while from the aspect of innovation and digitalisation, the IMD's Digital Competitiveness Index and the European Commission's Digital Economy and Society Index (DESI) should be mentioned.

The objective of the Competitiveness Report and Competitiveness Index of the MNB is to assess the competitiveness position of Hungary in comparison to the European Union. The MNB's analysis is a national competitiveness report, as it basically focuses on Hungary, and it contains a detailed written assessment, too. The Competitiveness Index is both comprehensive, as it uses 159 indicators, and objective because 95 per cent of them are factual indicators. The analysis of 2021 examined the performance of Hungary and the EU countries in 14 areas, including the indicators of the financial system, the SME sector, the external economy, the human capital, the regional and social convergence, the efficiency of the state, the infrastructure, and the green and digital economy (MNB, 2021).

The MNB used an independent methodology to construct the Competitiveness Index. The scoring scales the performance of the individual countries between 0 and 100

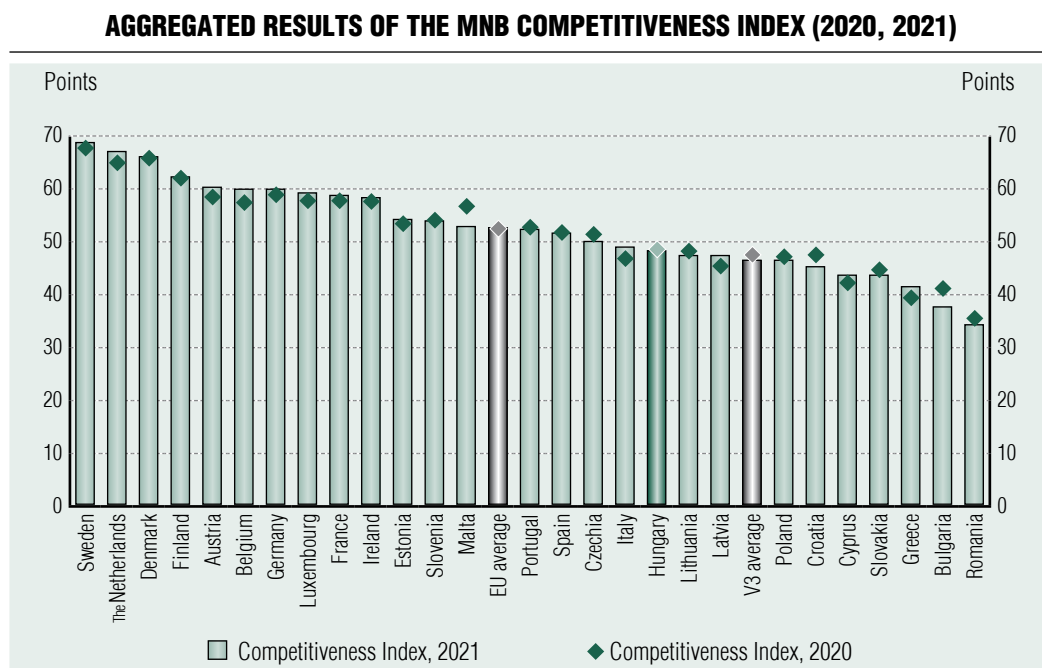
points, where the best-performing country receives 100 points, while the score of the other countries depends on the standard deviation they are from the best score. A country within 1 standard deviation from the best score is awarded 75 points, and thus countries being 4 or more standard deviations further from the best score receive 0 point. The methodology permits that the optimal value varies by indicator (minimum, maximum, average, specific target value). The score of the individual topics is the arithmetic mean of the indicators included in them, while the aggregated score of the index is the arithmetic mean of the 14 areas under review taken into consideration with the same weight (MNB, 2021).

RESULTS OF THE MNB COMPETITIVENESS REPORT AND INDEX

Hungary was ranked 18th in the MNB's competitiveness ranking among the 27 countries of the European Union in 2021. Hungary achieved 47.6 points, which is slightly below the EU average (51.8 points) but still exceeds the average of the Visegrád competitors (45.7 points). Our place is identical to the result of the ranking of 2020, as the earlier index of 28 countries now does not include the United Kingdom, which had a better position than Hungary. The top of the list was occupied again by the Scandinavian countries and the Netherlands, while the bottom was occupied by Romania, Bulgaria and Greece (*Figure 3*).

Hungary achieved a higher score than the EU countries and the V3 countries in the areas of *regional and social convergence*, *activation of household savings* and *modern infrastructure*. The Hungarian results exceeded the average of the other Visegrád countries in further

Figure 3



Source: MNB

seven areas and were below the average in four areas (Figure 4). In the following sections, we present the results achieved in the individual areas and the progress options in five main topics, based on the Competitiveness Report of 2021.

Quantity and quality of human capital

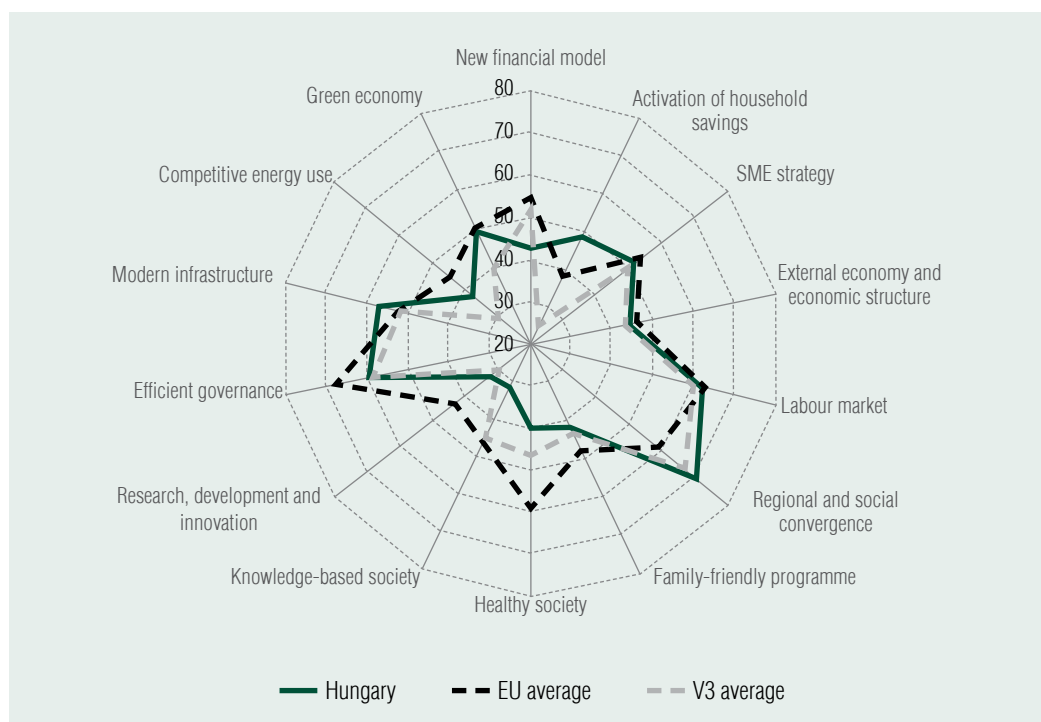
Human capital and its productivity is one of the most crucial factors for competitiveness and convergence, and its quantitative and qualitative attributes affect potential growth through several channels. On the one hand, through the labour force available in production, and on the other hand, through the productivity of employees, which is essentially determined by education level and health status. Over the past years, Hun-

gary has made progress in a number of indicators of the human capital, but if we look ahead, the demographic barriers (ageing and declining population) will be effective, and the knowledge-intensive economic transition may present a challenge.

Regarding demography, as the factor primarily determining the quantity of human capital in the long term, it is favourable that the fertility rate has increased most in Hungary within the EU over the past decade. Compared to the historic low of 1.2 registered in 2011, the fertility rate rose to 1.5, which may have been facilitated by the strengthening of the family support system after 2010 and the steady improvement in the economic environment. The value of the indicator came close to the EU average, but it still falls short of 2.1, i.e., the value necessary for the reproduction of the population. Another determinant of the population size is life

Figure 4

RESULTS OF THE MNB'S COMPETITIVENESS INDEX BY AREA (2021, POINT)



Source: MNB

expectancy at birth. Since the regime change, this indicator has increased to 77 in a trend in Hungary, but the pandemic reduced it to 75 years, and it is still lower than the averages of the EU and the V3. In addition to the decline in the population, ageing also represents an increasing challenge: the proportion of the population aged 65 and over is 20 per cent in Hungary, which is similar to the EU average, but higher than the average of the V3 (MNB, 2021).

Through the labour market, the volume of human capital significantly contributed to growth in the past decade. The reforms introduced in the 2010s created full employment, and the labour market has moved only slightly away from that during the coronavirus crisis in 2020. From 2010

to 2019, the Hungarian employment rate showed one of the sharpest increases in the EU, and in parallel with that, unemployment dropped significantly, while wages increased dynamically. The implementation of full employment resulted in not only economic but financial stability, too. The favourable processes were slightly blocked by the crisis generated by COVID-19, but the number of employed people increased to almost 4.7 million by the end of 2021, which is the highest value since the regime change. The improvement in labour market processes was supported by a number of government measures in the past decade: the reduction of labour taxes (single-rate personal income tax, reduction of social contribution tax), the introduction of the Job Protection Action

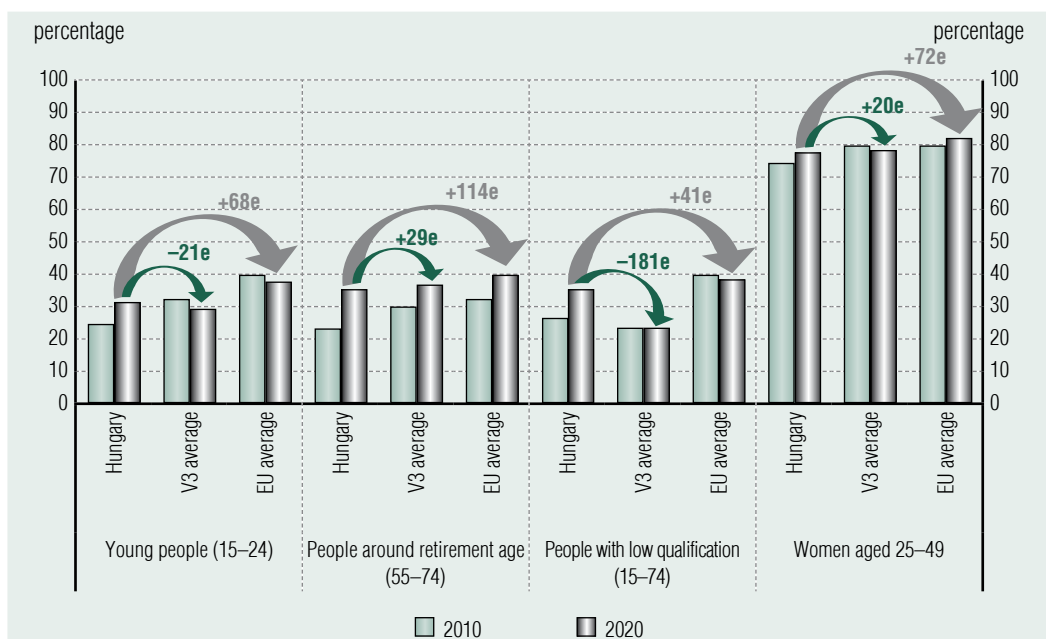
Plan, the extension of public employment and the rationalisation of welfare transfers. During the coronavirus pandemic, several government programmes helped businesses in maintaining existing jobs and creating new ones. However, in spite of achieving full employment again, there are still significant labour reserves, primarily in the vulnerable groups in the labour market – young people, people with low qualifications, people close to retirement, and women (Figure 5) – and their mobilisation is essential for the further strengthening of competitiveness. While the number of the working-age population is expected to decline further, full employment has to be maintained.

Looking ahead and considering the quantity of human capital, a major challenge may be presented by the declining and ageing

population, which is an obvious trend not only in Hungary but also across Europe (Matolcsy, 2020b). In Hungary, the number of people of working age may decrease by almost 360 thousand by 2030. At the same time, the ageing of the population will also continue, which may have negative impacts on the growth prospects and the social benefit systems. In order to improve the demographic processes, it is essential to further boost the fertility rate, which may be supported by the continuation and extension of family-friendly measures. In the short term, the impacts of demographic barriers becoming effective on the labour market may be mitigated by the wider spread of flexible employment forms (part-time jobs, home-office), which may increase the activity of more vulnerable groups. In addition, raising wages in line with the productivity growth

Figure 5

ACTIVITY RATE IN VULNERABLE LABOUR MARKET GROUPS (2010, 2020)



Note: Red and green numbers indicate the additional activity required for the V3 and the EU rates in 2020.

Source: Eurostat

and attracting Hungarians working abroad to come home could also contribute to an increase in the labour force.

One of the key indicators of the quality of human capital, the labour productivity has improved over the past years, in parallel with the extension of employment, but it is still below the EU average. Labour productivity is basically determined by the health status and the qualification of the population.

The health status of the society is important at the level of the national economy, too, not only at an individual level, as the labour force influences the performance of the economy through its quality and quantity, too. The general health status of the Hungarian population is worse than the average in the region and the EU. In 2019, healthy life years (62.8 years) reached the EU average for women, but men are still behind (60.7 years). Hungary is one of the worst performers in the EU with its rates of obese adults, mortality driven by behavioural risks and avoidable mortality, and this is partly caused by an unhealthy way of life and the lack of proper prevention. In addition, Hungary's healthcare expenditure as a percentage of GDP (6.4 per cent) falls short of the average of both the V3 and the EU (7.1 and 8.3 per cent, respectively) in 2019. Another problem is that the private health care expenses are spent not through institutionalised forms (health funds and insurances), and the number of practising doctors and nursing professionals is lower than the EU averages, partly because of working abroad and changing careers. The COVID-19 pandemic has also made it clear that individual responsibility plays an important role in preserving good health, and the healthcare system can support it with proper prevention and care (MNB, 2021).

A good quality education system and the proper education level of the population are essential for the knowledge- and technology-

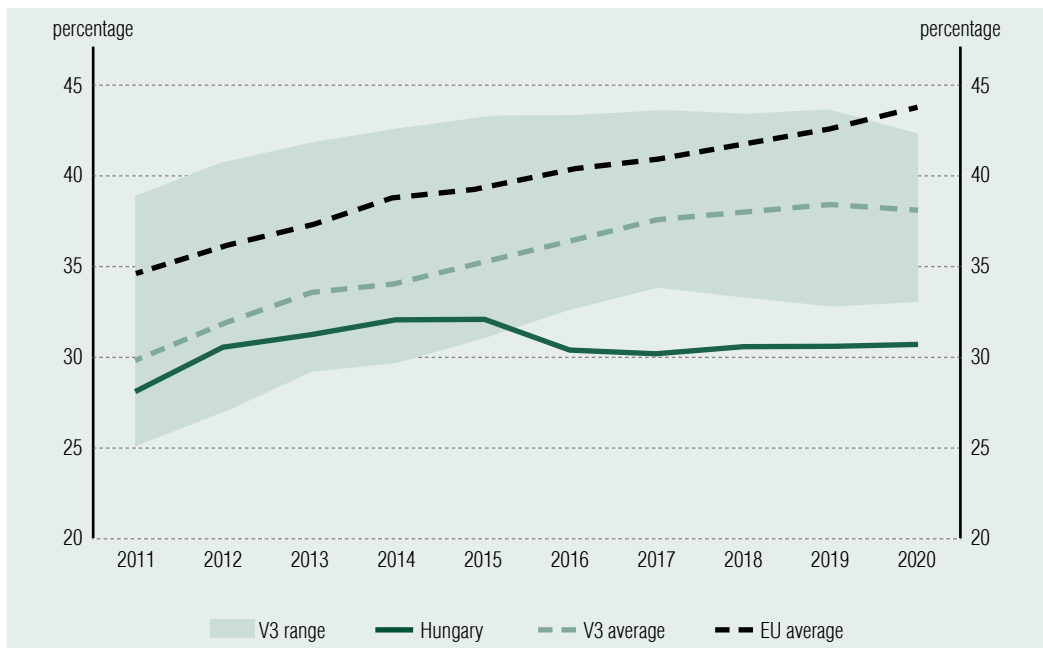
driven growth model. Tests measuring the effectiveness of the education system show that Hungarian students learn the curriculum as expected of them, but they are less efficient in using this knowledge in practice. Numeracy competence of adults are above the international average, but there are shortages in language and financial skills and lifelong learning. Knowledge-intensive convergence is made more difficult by the fact that the ratio of tertiary graduates in Hungary is one of the lowest among the EU countries (31 per cent) (*Figure 6*). Another problem is the high ratio of early school leaving (12.1 per cent), which is higher than the average of the Visegrád countries and the EU (6.9 and 8.8 per cent). In 2018, Hungary spent 3.8 per cent of the GDP on education, which is slightly lower than the average of the V3 and the EU (above 4 per cent). As to tertiary education, the Hungarian universities are not in the vanguard of the world, while the ratio of international students in the Hungarian tertiary education exceeds the average of the EU. Looking ahead, for the knowledge- and innovation-driven convergence, it is inevitable to develop education according to the requirements of the modern age and the market demands (MNB, 2021).

Financial system

The maintenance of growth and convergence is impossible without an efficient and solid financial system and diversified financing. The sustainable growth of the economy requires the supporting contribution of the banking system through crediting, especially in countries – such as Hungary – that are characterised by bank-centred financing. In addition, a diversified capital market may provide significant support to financing of corporations and economic growth.

Figure 6

RATIO OF TERTIARY GRADUATES AMONG PEOPLE AGED 25–34



Source: Eurostat

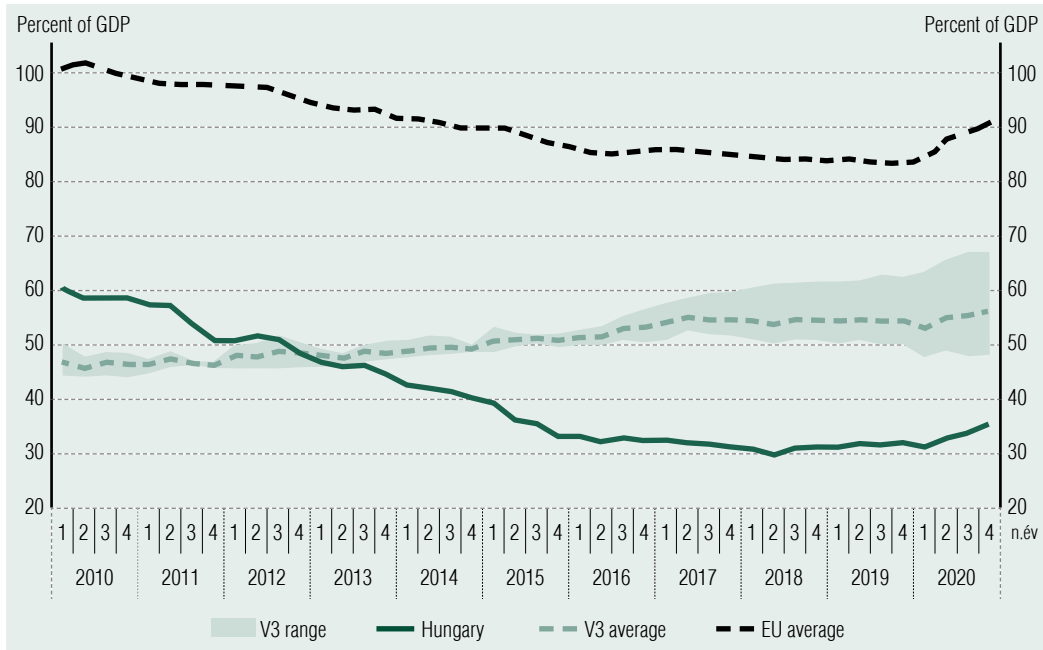
Owing to its efficient operation and regulatory measures, the stability of the Hungarian financial system has improved over the past decade. The ratio of non-performing loans declined significantly, and by autumn 2019 it fell below 5 per cent, while the capital adequacy of the banking sector rose further. From 2017, outstanding lending grew substantially in a sound structure, where corporate lending was largely supported by the central bank schemes (low interest rate environment, Funding for Growth Schemes), while the introduction of family support schemes (e.g. Home Purchase Subsidy for Families, Prenatal Baby Support Loan) and the penetration of consumer-friendly products generated a positive turn in lending to households. At the time of the outbreak of the coronavirus pandemic, the Hungarian banking sector had a loan portfolio growing

in a sound structure, and it had high capital reserves. As a result of the central bank and government loan schemes, the private sector’s loan portfolio kept growing, so by the end of 2020, its level already exceeded 35 per cent of GDP (Figure 7) (MNB, 2021). The success of loan-based crisis management is indicated by the fact that in 2020/2021, the MNB created new resources of HUF 4,600 billion for corporations, HUF 4,000 billion for the state, and HUF 3,000 for the banking system, so the central bank programmes increased the GDP by altogether 9 per cent (Matolcsy, 2022b). The MNB’s Bond Funding for Growth Scheme contributed to the diversification of corporate fund raising, thus increasing the size of the Hungarian bond market from 1 per cent to 3.2 per cent of GDP.

In recent years Hungary’s macro-financial vulnerability has also declined significantly

Figure 7

VOLUME OF LENDING TO THE PRIVATE SECTOR AS A PERCENTAGE OF GDP



Source: ECB

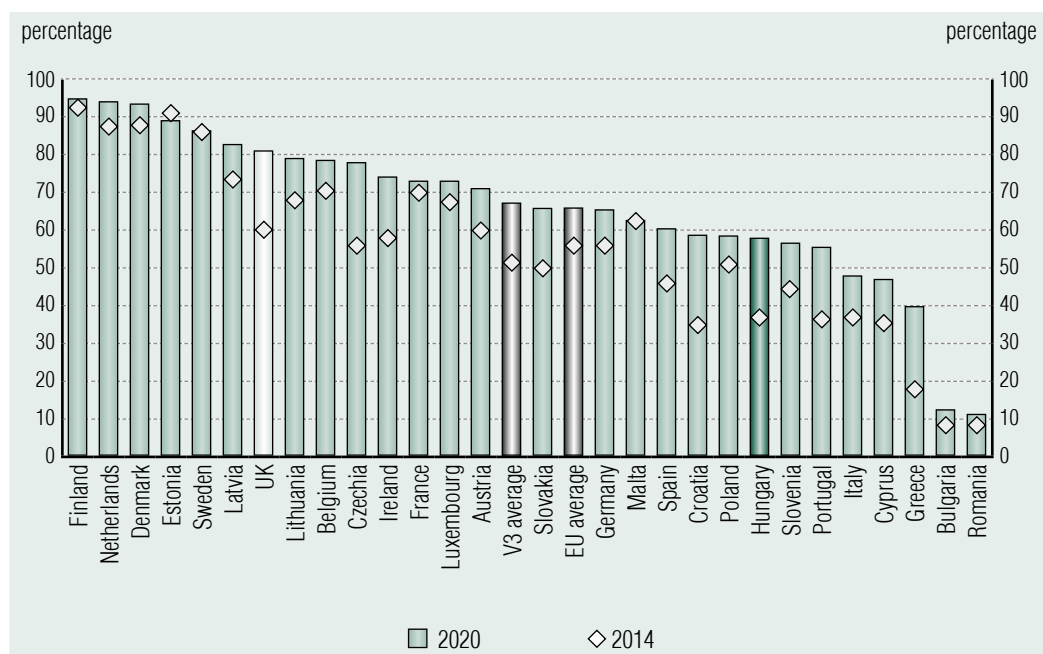
as a result of the conscious strengthening of domestic financing after 2011. Since 2010 households’ government securities holding became more than ten times higher, with a major contribution by the introduction of the MÁP+ (Hungarian Government Securities Plus) in 2019. The success of MÁP+ is evidenced by the persistent strong demand for it even in 2020, and by the end of the year, the outstanding stock exceeded HUF 5,200 billion. As a result of the strengthening of domestic financing, the share of foreign financing has dropped significantly within the government debts, while the share of Hungarian households increased, and in 2020 the direct financing by households reached 24 per cent compared to the 3.5 per cent EU average and the 1.5 per cent Visegrád average (MNB, 2021).

The maintenance of the convergence is

based on the provision of efficient, stable and diversified financing, and on keeping household savings at a high level. In spite of the results achieved, the deficiencies of the Hungarian financial intermediary system include the high costs of operation, the moderate role of alternative financing channels, and there is still room for improvement in the extension of the loan portfolio in a sound structure. The improvement of the banking system and the increase in lending may be facilitated by the wider use of digital solutions, as the pandemic pointed out. Over the past decades, innovative technological and digital solutions have become more important, but there is still major room for development in this field (Figure 8), as well as in the establishment of the FinTech ecosystem and the supporting institutional and legal environment (MNB, 2021).

Figure 8

RATIO OF PEOPLE USING INTERNET BANKS (2014, 2020)



Source: European Commission – Digital Economy and Society Index

SME sector and economic structure

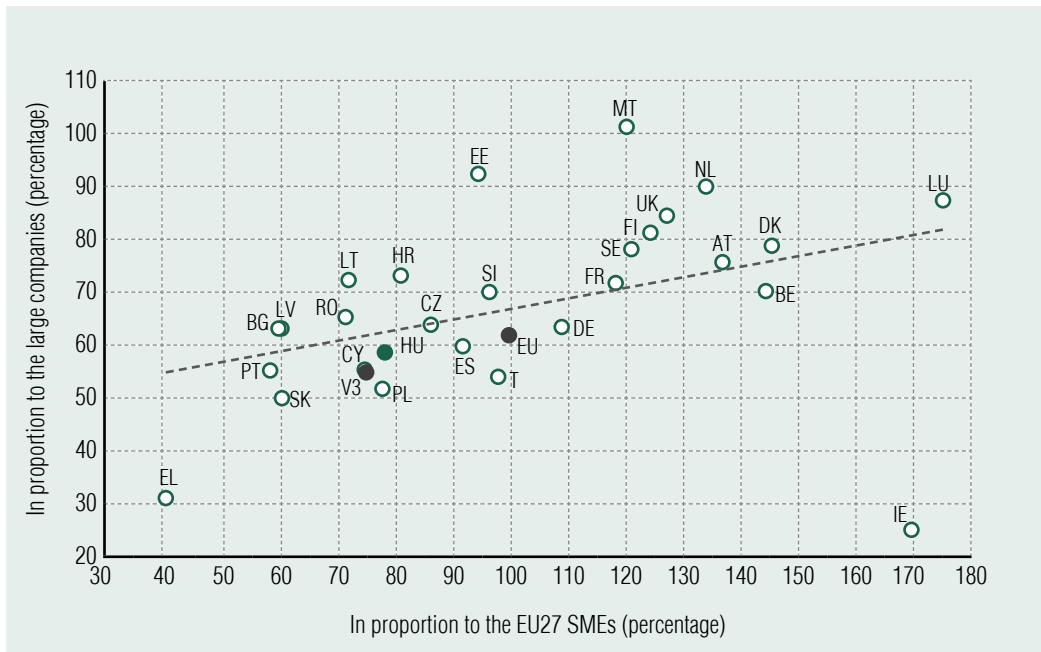
The competitiveness of enterprises and within that the prosperity of the SME sector constitutes the basis for economic development. Because of their economic significance, the development of small and medium-sized enterprises is of special importance: the SME sector provides almost 70 per cent of corporate employment, half of the value added and one-fifth of exports, and the vast majority of this sector is in Hungarian ownership (MNB, 2018).

Over the past years, SMEs have achieved significant convergence, and this has significantly eased corporate duality. Between 2010 and 2018, the relative productivity of the SME sector approached that of large companies by 12 percentage points, which is one of the greatest convergences in international

relations. The favourable lending conditions, the reduction of corporate taxes, the central bank’s Funding for Growth Schemes, the efficient use of EU funds, the second-round effect of the inflow of EU funds and the moratorium on loan instalments during the period of the pandemic materially contributed to the growth of the sector. The success of reforms and crisis management is indicated by the fact that Hungarian companies proved to be resilient to the adverse economic effects caused by the COVID-19 pandemic. However, in spite of this impressive convergence, Hungarian SMEs still do not reach 60 per cent of the productivity of domestic large companies. Compared to regional SMEs, the position of Hungarian SMEs is somewhat better, but their productivity is around 80 per cent of the EU average (Figure 9). Hungarian SMEs in general are characterised by drifting

Figure 9

RELATIVE LABOUR PRODUCTIVITY OF SMES (2018)



Source: Eurostat, DIW-ECON, MNB calculation

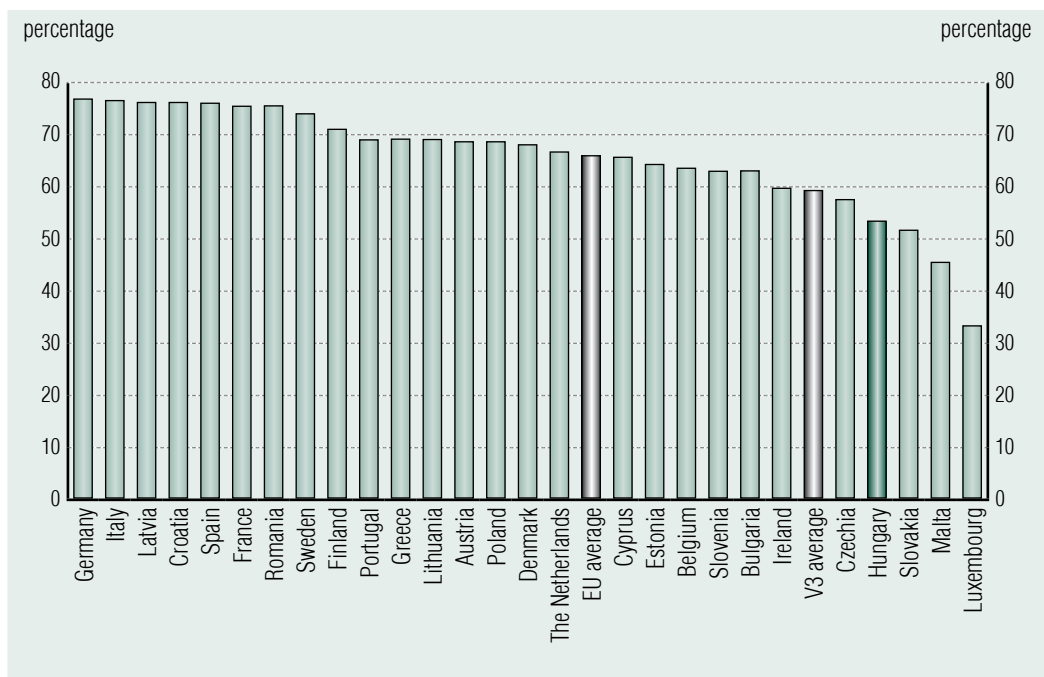
with market conditions and state regulations. Advanced digitalisation solutions are almost unknown to a wide range of SME managers, and the majority of these businesses do not take any steps to reduce the burdens on the environment. The foreign trade performance of the SMEs is important, because, for small open economies, the increase of exports is one of the fastest ways to convergence. There are significant growth reserves in the foreign trade activities of SMEs, as only 6 per cent of Hungarian SMEs (38 thousand) export their products, while in Austria, for instance, this rate is 15 per cent. In order to increase competitiveness, it is essential to further reduce corporate duality by improving the productivity and the export performance of SMEs, which may be supported by assisting the SMEs in reaching a higher level in size and the change in generations, and by encouraging

their innovation activities and investments (MNB, 2021).

One of the most important structural factors from the aspect of competitiveness, the domestic value added of exports has one of the lowest values within the EU in Hungary (54 per cent) (Figure 10). It is favourable that several foreign trading sectors (mainly the car industry and electronics dominated by foreign companies) are competitive, but they cover their production mainly from imports. The share of services that usually contain higher value added is less than the EU average. The increasing of the domestic value added of exports requires the strengthening of knowledge-intensive service exports and the creation of knowledge-intensive jobs, then Hungary could move higher in the production chain and could strengthen its competitiveness (MNB, 2021).

Figure 10

DOMESTIC VALUE ADDED CONTENTS OF EXPORTS (2018)



Source: OECD-TIVA

Digital economy

Digitalisation is one of the most determining megatrends of our age, which covers all areas of life and has a major impact on the competitiveness of economies. The primary raw material of digitalisation is data, and there is not a single segment of the economy that can be independent of digital transformation (Matolcsy, 2020c). If a country and its actors do not join the digital transformation, they will fall behind, and there will be a permanent duality between digitally advanced and not advanced economies, industries and businesses.

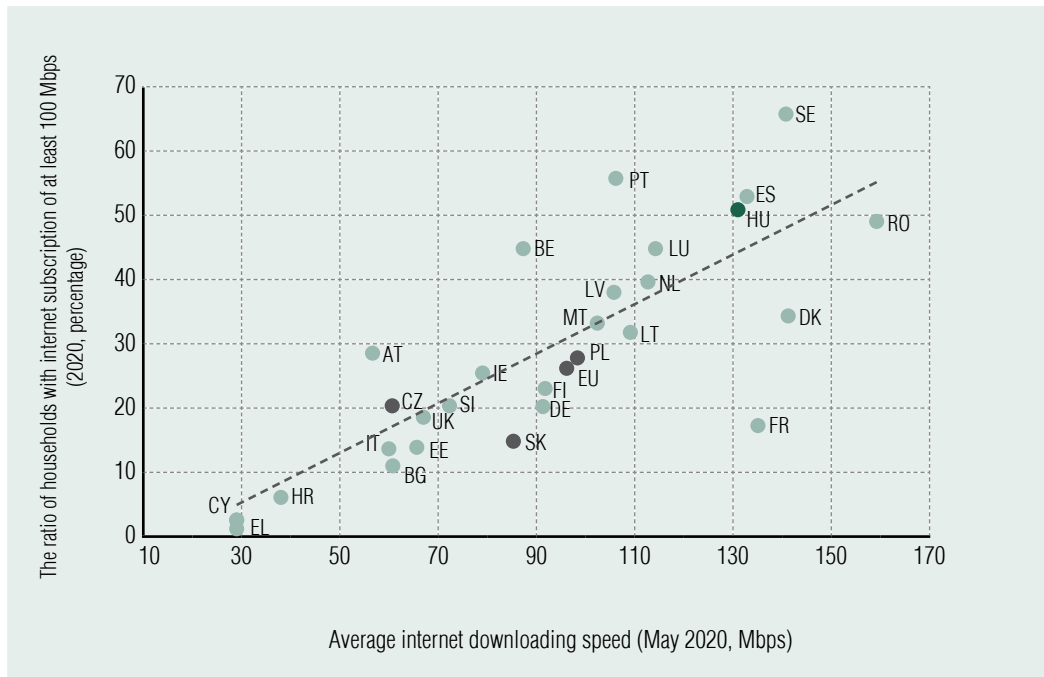
Hungary has adequate digital infrastructure, but there are still significant reserves in its utilisation. As to the speed and the penetration of the broadband internet, Hungary belongs to the top countries of the EU. The speed

of 35 megabits per second is faster than the EU average, while the coverage is almost double the EU average (Figure 11). It is favourable that in the field of licensing and using 5G frequencies, Hungary has the 8th best performance in the EU. However, the utilisation of the digital infrastructure by the state, the businesses and the population is at a relatively low level (MNB, 2021).

Based on the digital development, Hungary is in the second half of the EU ranking, according to the Digital Economy and Society Index (DESI) (Figure 12). According to this index, the position of Hungary is favourable in the field of connectivity (7th place), but in the case of economic players, the use of digital solutions is below the average: in internet services, we are in the middle of the list, while in the case of the digital skills of the labour

Figure 11

SPEED AND PENETRATION OF BROADBAND INTERNET (2020)



Source: European Commission, Speedtest

force, digital public services and the corporate integration of digital technologies, we are in the second half or at the end of the EU list.

Advanced digital technologies such as cloud services or sensor solutions are already in place in many SMEs, but big data, artificial intelligence, robot technologies or blockchain are less widespread. While in average 22 per cent of the SMEs in the EU use some kind of digital technology, this is 11 per cent in Hungary, and only 1 per cent of Hungarian SMEs have digitalisation plans. The extent of applying digital solutions at companies significantly influences the productivity gap between different sizes of enterprises (MNB, 2021).

The poor digital skills of the population are indicated by the fact that only 51 per cent has at least basic software skills, which is behind the EU average of 61 per cent. In the case of

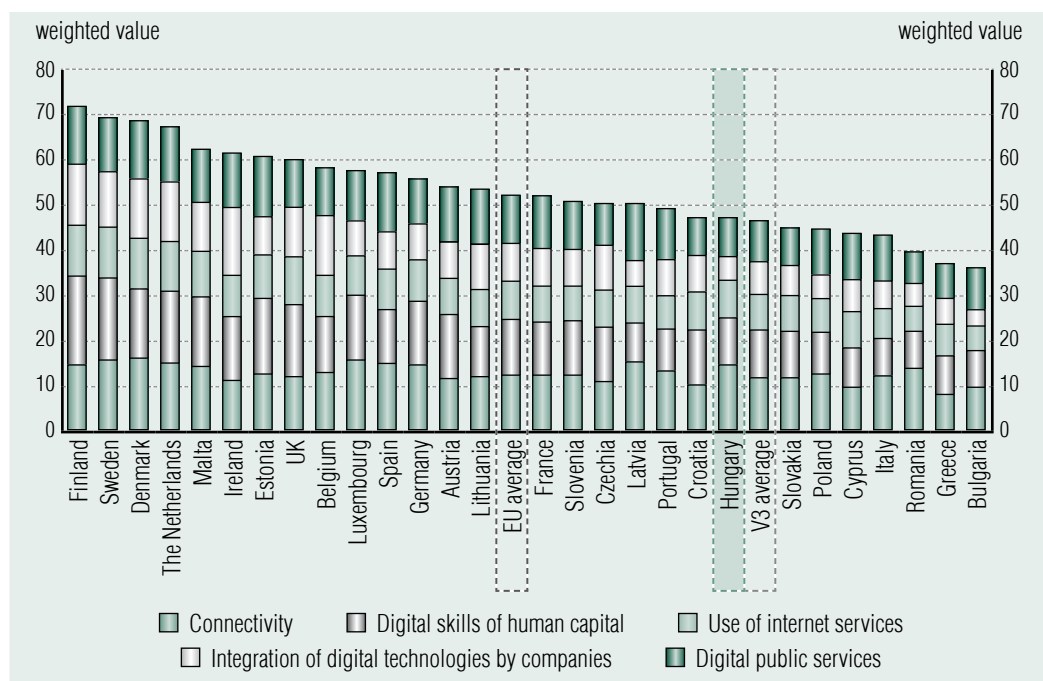
public administration, there has been some progress over the past years, for example, with the extension of the e-governance, the ratio of people using e-governance has doubled, the size of the shadow economy decreased, and so did the bureaucratic burdens on companies (MNB, 2021). The role of the state in digitalisation is especially important, as the digitalisation of its own operation may show the way to other actors of the economy. Estonia is a good example of the high level of digitalisation, where basically all issues can be administered online.

Green economy

No sustainable convergence exists without a transition to a green and circular economy.

Figure 12

RESULTS OF THE DIGITAL ECONOMY AND SOCIETY INDEX (2020)



Source: European Commission

Ecological sustainability can only be achieved if we treat the protection of natural resources as a high priority. Therefore, it is of utmost importance that we do not exploit the natural resources available to us but manage them in an efficient and economical manner. Nowadays, almost all countries of the world – including Hungary – consume more natural resources than those available to them. In 2017, Hungary over-consumed its environmental assets by 11 million global hectares. However, on the positive side, our ecological deficit has decreased compared to the decades before the political transition, and its rate is lower than the EU and the regional average (MNB, 2021).

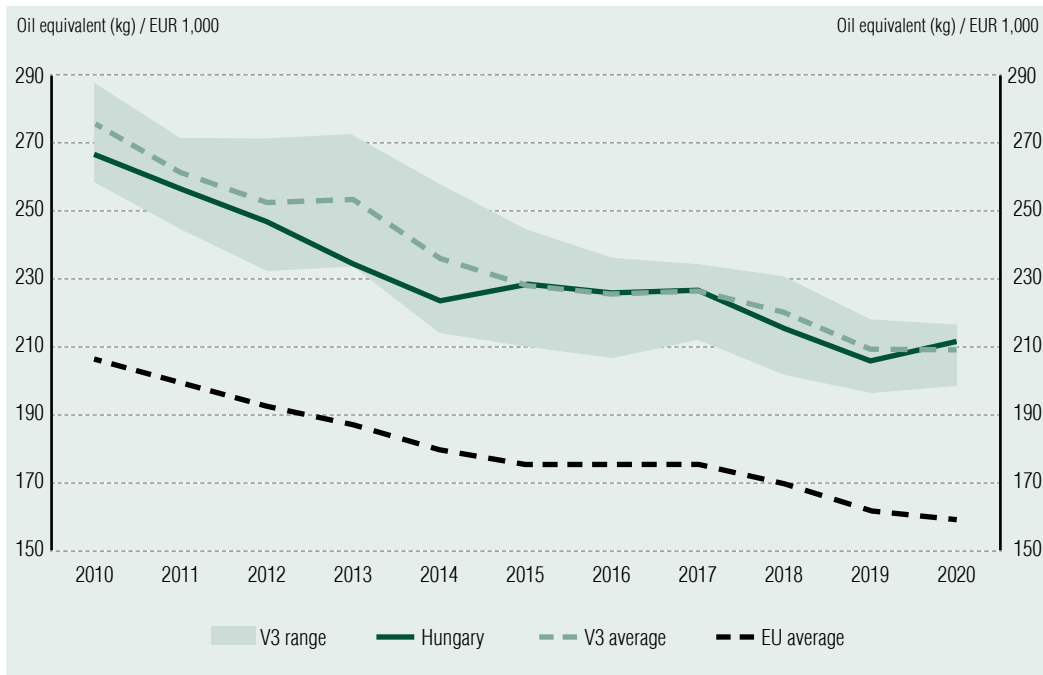
It was a favourable development for Hungary in the past years that the energy intensity of the economy decreased, and so

did the carbon dioxide emission per capita and one unit of economic output. The latter are below the EU average, but our energy intensity, i.e. our energy consumption per one unit of economic output is still significantly higher than the EU average (Figure 13). The population’s exposure to air pollution is the 7th highest in the EU, the main reason for which is transport and the heating emissions of residential buildings. There has been progress in the field of waste recycling, too, presently 36 per cent of the waste is recycled, but further efforts are required (MNB, 2021).

In the Hungarian economy, the share of net energy imports is still high, it was around 57 per cent in 2020. In addition, the use of renewable energy sources compared to total energy consumption is below the EU and the V3 average (Figure 14). The rate of the use of

Figure 13

ENERGY INTENSITY OF THE ECONOMY



Source: Eurostat

renewable energy sources has been going down since 2013, and it is presently 13 per cent, so there is still a long way to go until we reach the targeted 21 per cent by 2030. However, it is favourable that the decline in the use of firewood has also played a role in reducing the indicator, and the target should be achieved primarily by extending solar and geothermal energy capacities.

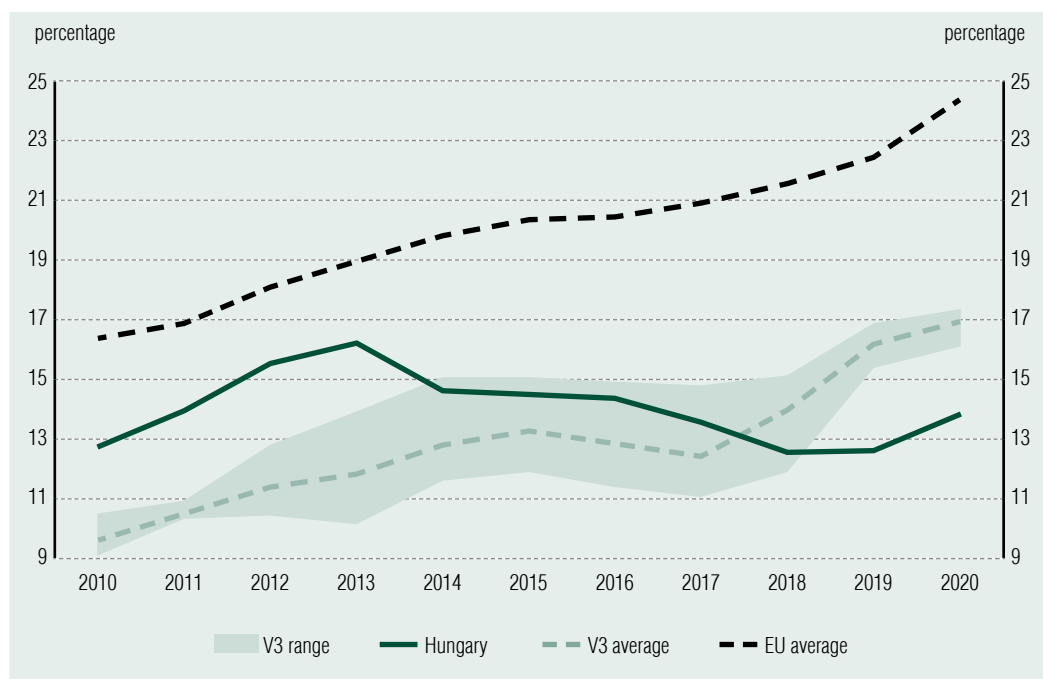
The green turn may be facilitated by green financial solutions, in which there has been significant progress, but further action is necessary. Revenues from environmental taxes and environmental expenses are lower in Hungary than the average in the European Union and the region. It is a positive feature, however, that in 2020 the Hungarian state issued the first green bond, and that was followed by similar bonds issued

by companies. The rate of issued Hungarian green government papers was the second highest in the EU in 2020, while the majority of the EU states have not used this instrument yet.

The MNB also supports the setting of the financial system and the economy on a climate-friendly path. The central bank was one of the first institutions to create a separated green bond portfolio in its foreign exchange reserves, and in 2019 it launched its Green Programme (Matolcsy, 2020c). Since August 2021, its activities – the first among European central banks – have been extended with a green mandate. The Green Home Programme started in the autumn of 2021, too, in which the MNB helps the population in buying and building energy-efficient homes with favourable interest rates.

Figure 14

USE OF RENEWABLE ENERGY SOURCES COMPARED TO TOTAL ENERGY USE



Source: Eurostat

MAIN FINDINGS

Over the past decade, the macroeconomic conditions that are necessary for the turn in competitiveness have been established in Hungary. Owing to the fiscal turn in 2010 and the monetary policy turn in 2013, Hungary is now on the path of balanced convergence. The increase in Hungary’s relative development has been more dynamic than the EU average, but several countries showed an even faster growth. In order to ensure our successful

convergence, Hungary has to change from the present extensive growth structure to an intensive, knowledge- and technology-driven growth model as soon as possible. However, in the path of this model change, we have to maintain our extensive instruments used successfully after 2010, too, such as labour-based economy, macro-financial balances and the provision of the efficient role of the central bank. These instruments may play leading roles in both quantitative and qualitative growth (Matolcsy, 2022c). ■

NOTE

¹ Source: <https://www.imd.org/centers/world-competitiveness-center/>

REFERENCES

- AGÉNOR, P.-R. (2017). Caught in the Middle? The Economics of Middle-Income Traps. *Journal of Economic Surveys*, 31(3), pp. 771-791, <https://doi.org/10.1111/joes.12175>
- AGÉNOR, P.-R., CANUTO, O. (2012). Middle-Income Growth Traps. Policy Research Working Paper No. 6210, World Bank, <https://doi.org/10.1596/1813-9450-6210>
- CSOMÓS, B., SZABICS, A. Zs., SZALAI, Á. (2020). Mérjük objektíven a versenyképességet! [Let's measure competitiveness in an objective way!], <https://www.mnb.hu/letoltes/csomos-balazs-szabics-andraszolt-szalai-akos-merjuk-objektiven-a-versenykepeseget.pdf>
- EICHENGREEN, B., PARK, D., SHIN, K. (2011). When Fast Growing Economies Slow Down: International Evidence and Implications for China. NBER Working Papers 16919, National Bureau of Economic Research, Inc., <https://doi.org/10.3386/w16919>
- EICHENGREEN, B., PARK, D., SHIN, K. (2013). Growth Slowdowns Redux: New Evidence on the Middle-Income Trap. NBER Working Papers 18673, National Bureau of Economic Research, Inc., <https://doi.org/10.3386/w18673>
- FOXLEY, A., SOSSDORF, F. (2011). Making the Transition: From Middle-Income to Advanced Economies. Carnegie Endowment for International Peace, https://carnegieendowment.org/files/making_the_transition.pdf
- HAUSMANN, R. (2020). Stabílan az élmézonyben: összetettég, mint a jövö sikereinek alapja. [Strong position among the leaders: complexity as the basis of future successes] <https://www.mnb.hu/letoltes/hausmann-robert-stabilan-az-elmezonyben-osszetettseg-mint-a-jovo-sikereinek-alapja.pdf>
- KHARLAMOVA, G., VERTELIEVA, O. (2013). The International Competitiveness of Countries: Economic-Mathematical Approach. *Economics & Sociology*, 6(2), 2013, pp. 39-52, <https://doi.org/10.14254/2071-789X.2013/6-2/4>
- MATOLCSY, Gy. (2020a). Egyensúly és növekedés 2010–2019 – Sereghajtóból újra éllovas. [Economic Balance and Growth 2010-2019 – From the last to the first] Magyar Nemzeti Bank (Central Bank of Hungary)
- MATOLCSY, Gy. (2020b). Quo vadis Hungaria? – Arcsall egy új világ felé. [Facing a New World.] *Polgári Szemle (Civic Review)*, 16(1–3), 2020, pp. 13-35, <https://doi.org/10.24307/psz.2020.0703>
- MATOLCSY, Gy. (2020c). A versenyképesség mint a fenntarthatóság meghatározó feltétele. [Competitiveness as the key condition of sustainability] *Pénzügyi Szemle (Public Finance Quarterly) (Pénzügyi Szemle)*, 65 (Special Issue 2), pp. 7-24, https://doi.org/10.35551/PSZ_2020_k_2_1
- MATOLCSY, Gy. (2022a). Elérhetjük-e az EU átlagos fejlettségét 2030-ra? [Can we reach the EU's average development level by 2030?] *Magyar Nemzet*, 02. 28. 2022, <https://magyarnemzet.hu/pc19/2022/02/matolcsy-gyorgy-elherhetjuk-e-az-eu-atlagos-fejlettseget-2030-ra>
- MATOLCSY, Gy. (2022b). Eredményes válságkezeléstől a fenntartható felzárkózásig. [From successful crisis management to sustainable convergence.] *Magyar Nemzet*, 03. 07. 2022, <https://magyarnemzet.hu/pc19/2022/03/matolcsy-gyorgy-eredmenyes-valsgakezelestol-a-fenntarthato-felzarkozasig>
- MATOLCSY, Gy. (2022c). Mít őrizzünk meg az extenzív növekedési modellből? [What should we keep from the extensive growth model?] *Magyar*

- Nemzet, 02. 14. 2022, <https://magyarnemzet.hu/pc19/2022/02/matolcsy-gyorgy-mit-orizzunk-meg-az-extenziv-novekedesi-modellbol>
- PALOTAI, D., VIRÁG, B. (2016). Versenyképesség és növekedés. [Competitiveness and Growth.] Magyar Nemzeti Bank (Central Bank of Hungary)
- PORTER, M. E. (1990). The Competitive Advantage of Nations. Harvard Business Review, 68(2), 1990, pp. 73-93, http://www.economie.ens.fr/IMG/pdf/porter_1990_-_the_competitive_advantage_of_nations.pdf
- SIUDEK, T., ZAWOJSKA, A. (2014). Competitiveness in the Economic Concepts, Theories and Empirical Research. Acta Scientiarum Polonorum. Oeconomia, 13(1), 91-108
- SOMOGYI, M. (2009). Versenyképesség a szakirodalomban – A fogalmi megközelítések összegzése és elemzése (I. Rész). [Competitiveness in literature – Summary and analysis of conceptual approaches (Part I)] Vezetéstudomány – Budapest Management Review, 40 (4). pp. 54-64, <https://doi.org/10.14267/VEZTUD.2009.04.05>
- IMD (2021). World Competitiveness Ranking, <https://www.imd.org/centers/world-competitiveness-center/rankings/world-competitiveness/>
- MNB (2018). Növekedési jelentés 2018. [Growth Report 2018] Magyar Nemzeti Bank (Central Bank of Hungary), <https://www.mnb.hu/kiadvanyok/jelentesek/novekedesi-jelentes/2018-11-08-novekedesi-jelentes-2018-november>
- MNB (2021). Versenyképességi jelentés 2021. [Competitiveness Report 2021] Magyar Nemzeti Bank (Central Bank of Hungary) <https://www.mnb.hu/kiadvanyok/jelentesek/versenykepessegi-jelentes/versenykepessegi-jelentes-2021>
- Világbank – World Bank (2013). China 2030: Building a Modern, Harmonious, and Creative Society. Development Research Center of the State Council, World Bank, Washington, DC., <https://doi.org/10.1596/978-0-8213-9545-5>
- Világbank – World Bank (2020). Doing Business 2020. World Bank Group, <https://www.doi.org/10.1596/978-1-4648-1440-2>
- Világbank – World Bank (2021). World Bank Group to Discontinue Doing Business Report, <https://www.worldbank.org/en/news/statement/2021/09/16/world-bank-group-to-discontinue-doing-business-report>
- WEF (2016). What is competitiveness? <https://www.weforum.org/agenda/2016/09/what-is-competitiveness/>
- WEF (2019). The Global Competitiveness Report 2019. World Economic Forum, https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf