THE LABOUR MARKET IN THE HUNGARIAN REGIONS IN 2035

Strategic foresight



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FOREWORD

The first strategic foresight of the Confederation of Hungarian Employers and Industrialists (MGYOSZ) is an attempt to stimulate joint reflection on the future of the Hungarian labour market. Hungary is a small and open economy that is strongly influenced by all global megatrends. Given the current rapidly changing economic conditions, we believe it is very important that we, as an economic interest group, address the question of how the future labour market could develop in the face of so many strong and unpredictable variables, especially because it is difficult to plan for these developments. The purpose of this report and the accompanying survey is therefore not to help with planning as an impossible mission, but to stimulate joint reflection between experts and decision-makers through a better understanding of the processes that influence our labour market in order to draw attention to the driving forces that can be used to shape the future. MGYOSZ is pleased to be able to play a supporting role in initiating such a dialogue.



Dr. Ferenc Rolek
Vice President

Budapest, 2024

01.

INTRODUCTION

This report is based on the results of workshops organised by MGYOSZ between June and December 2023. In this context, we organised scenario planning workshops in Budapest, Nyíregyháza, Miskolc, Szeged, Pécs, Szombathely and Székesfehérvár to bring together experts and decision-makers from various sectors to reflect on the labour market and jointly develop scenarios of what the Hungarian labour market will look like in 10 years' time. We wanted to find out which trends will determine the long-term future of the labour market in a particular region and which driving forces could shape them in the future. The workshops were led by facilitators experienced in scenario planning according to a predefined methodology; the workshops in each region followed a similar scenario. This was a guarantee that the scenarios developed by the participants were plausible and realistic, thus encouraging joint reflection and possible preparation for alternative futures. The aim was to get a picture of which factors (driving forces) are already visible in the economy and the labour market today and which indicate a certain trend that will influence the future of the Hungarian labour market in the long term and in its structure.

The methodology applied relies heavily on systems thinking and the interrelationships between various (social, technological, ecological, geopolitical and cultural) factors. Two key steps have made this systemic approach possible:

In a first round, the participants identified current trends and developments perceived by regional labour market experts that are already visible, albeit at an early stage.

In a second step, the participant groups analysed which driving forces influence these trends, i.e. strengthen or weaken them. These driving forces are measurable, verifiable factors whose development determines the future direction and speed of the associated trends.

In a second step, the driving forces were categorised according to their impact and the probability of their impact on the labour market in a ten-year perspective.

Scenario planning with the stakeholders should not draw a complete map of the driving forces, but rather use an interdisciplinary approach to attempt to outline the interplay of the most uncertain but at the same time most significant future-shaping factors in the system and the possible scenarios that could result from this interplay. In developing these alternative visions, the group paid attention to which factors should already be monitored in the current situation in order to react to changes or to prepare proactively or preventively.

By allowing participants to select the driving forces that determine the possible scenarios, the workshops highlighted the uncertain or least predictable parts of the system that are relevant or challenging in preparing for future labour market developments.

The common overlaps between the driving forces identified in the different regions show what can be considered a general impact and what can be considered region-specific in the world of work.



02.

DRIVING FORCES FOR THE FUTURE DEVELOPMENT OF THE LABOUR MARKET IN A TEN-YEAR PERSPECTIVE

Of the driving forces identified in the workshops, those were selected which, in the opinion of the participants, have a high impact and whose occurrence is foreseeable or uncertain. These factors were then analysed in more detail during face-to-face discussions with the participants. Remarkably, there are many overlaps between the driving forces, even if they do not have the same name and do not necessarily refer to the same phenomenon. This indicates that the regional driving forces are in some cases national issues. In order to convey a general and country-specific picture, we have prepared a general analysis grouping the driving forces around four themes.



1. Complex economy and society



These include driving forces that affect the productivity of companies and its medium-term development, but also those that raise social issues. These driving forces are typically factors of national importance, so addressing them at local level can only achieve limited results. A typical example is the issue of indebtedness, which restricts people's access to employment and mobility. The underdevelopment of infrastructure is a similar problem. At the same time, the rapid development of the electric vehicle industry in Hungary was also considered an opportunity that could represent great potential for all regions. However, the effects of this development are not yet known, as it requires less labour and has a greater impact on the environment than the production of cars with combustion engines.

2. Climate



It is interesting to note that the expected economic difficulties caused by climate change were only identified in two regions, but their importance makes them worthy of a separate category. Droughts and heatwaves can have serious consequences not only in agriculture, but also in production. This applies in particular to water-intensive sectors such as the rapidly growing battery and electric vehicle industry.

3. Labour force



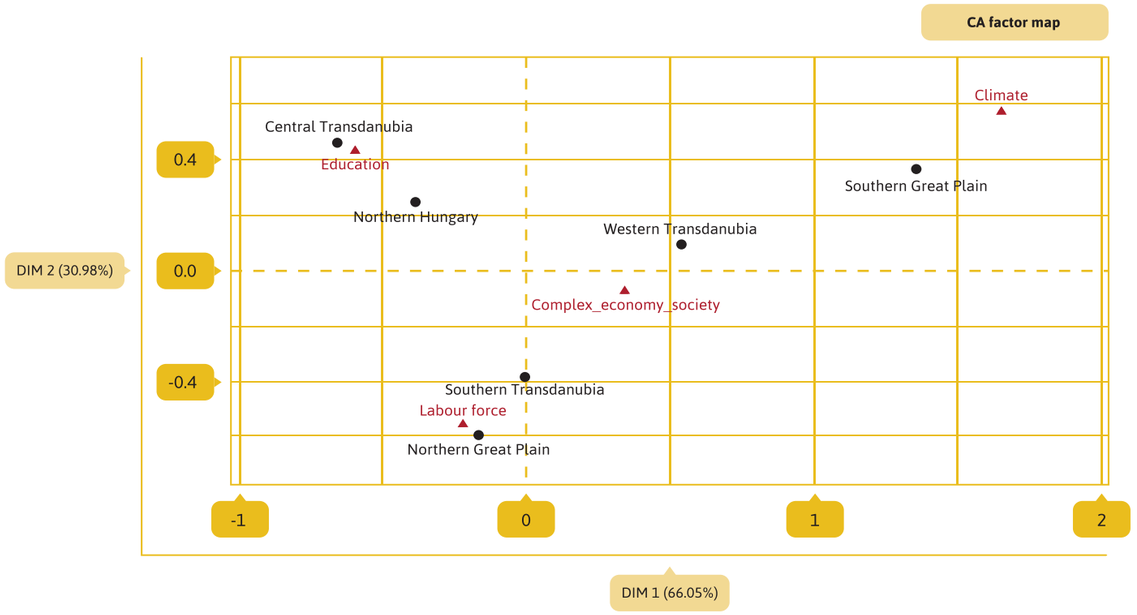
Labour-related driving forces are present in all regions and primarily affect employability. The opinions of the respondents reflect not only the responsibility of companies, but also that of employees, although there is a strong shift in favour of employees. Problems with mobility and willingness to work are frequently mentioned. Labour and skills shortages lead to many problems, including high staff turnover and the need to recruit migrant workers. The partial integration of the latter groups into society and their full integration into the labour process is not proceeding smoothly due to their different cultural and linguistic backgrounds. Migrant workers are generally considered a good labour force, but their employability is limited as it is difficult to ensure their development and training locally. At the same time, there is a shortage of Hungarian labour, and their salary expectations have increased significantly in recent times, while their professional experience has decreased..

4. Education



A major problem in all regions is the so-called "skills mismatch", i.e. the education system does not produce a labour force that can be immediately integrated into the production processes. The qualifications and educational level of the Hungarian labour force are generally considered to be poor, and there is a broad consensus that the situation is deteriorating from year to year. The employability of the population with a low level of education (up to 8 years of primary education) is a serious problem. Although these groups undoubtedly represent considerable potential for the labour market in quantitative terms, they are generally not able to enter production at all. There are not too many of them, but qualifications are slowly becoming detached from the number of grades completed; whereas eight years of primary education used to be the threshold for employability, today even a vocational qualification is no guarantee that a person has the skills required for the job.

The driving forces identified were grouped into 4 categories based on their content: climate, complex economic and social challenges, labour market challenges and education. We then created a matrix of driving force categories and regions, with the elements representing the frequency of the driving forces in the regions according to the respondents. We conducted a single correspondence analysis along the cross-tabulation of categories and regions, which yielded the following results in two dimensions:



The method involves projecting a multidimensional crosstab onto fewer (in this case two) dimensions (with minimal loss of information) and thus drawing a "map" of the crosstab. The red labels indicate the categories, the blue labels the regions. The points close to each other show the similarity between the categories. Southern Transdanubia and Northern Great Plain, for example, have similar driving forces, and this is largely related to labour. For example, the education-related driving force is a typical "problem" of the Central Transdanubia and Northern Hungary regions. Although the root cause of the driving forces is the same in both regions, the problem manifests itself differently. New capacities in Central Transdanubia would in part require highly qualified labour, but there is practically no free labour force of working age with the necessary qualifications in the region, so companies are trying to poach each other's workers. One option would be to train less qualified workers, but here companies are often confronted with the fact that the basic skills of the employees do not allow this. According to reports, the Northern Hungary region still has spare capacity in the labour force of working age, but their level of qualification is very low.

As you can see, the category of driving forces is well separated, i.e. there are regional peculiarities. The most central element is, unsurprisingly, the complex economic and social driving force which is centrally located in the space of regions, i.e. it cannot be linked to any specific region, but is "shared" by all regions.

The driving forces identified are main categories, even if there are regional peculiarities, all of which require national competence. These include education, employability factors, climate protection and, of course, social issues. Regional companies can only take measures to mitigate some of these problems at a local level, but a complete solution requires a national package of measures.

Indicators of regional development in Hungary

Region	GDP per head, PPS 2021	Productivity (GVA (PPS) per persons employed) 2020	Real productivity growth (average % change on the preceding year, 2011-2020)	Real GDP per head growth(average % change on the preceding year, 2011-2020)	Population growth (average annual change per 1000 residents, 2011-2020)	Unemployment rate (% of active population, 2021)	Early leavers from education and training (% of the population 18 to 24 years, 2021)	Regional Competitiveness Index (range between 0-100, 2022)	Severe material and social deprivation, % of the population
EU	100	100	0.2	1	2	7	9.7	100	6.8
Hungary	74	67	0.6	2.5	-2.3	4	12	83.4	10.7
Budapest	156	71	0.2	2.1	0.2	2.9	5.4	105.5	7.4
Pest	61	71	-0.1	1.4	8.3	3	9.1	105.5	8.7
Central Transdanubia	70	65	0.8	2.8	-2.2	2.1	11.2	82.3	8.3
Western Transdanubia	68	69	0.7	1.9	1.1	2.2	6.8	83.9	5.2
Southern Transdanubia	51	61	1.1	2.8	-7.4	4.8	13.2	69.9	12.4
Northern Hungary	52	63	1.3	3.5	-8.7	6.2	22.3	66	20.3
Northern Great Plain	49	61	0.7	2.7	-5	7.1	16.9	67.9	15.4
Southern Great Plain	54	62	1.1	3.3	-6.6	4.5	10.4	73.3	8.3

*Source: European Commission

Regional labour market situation and driving forces based on the results of the workshops



Southern Great Plain

↙ Driving forces

- implementation of an economic development strategy
- climate-friendly, resource-efficient environmental developments
- competitiveness

The economic development strategy for the Southern Great Plain region provides an undistorted picture of the situation in the region and precisely identifies the areas to be developed. It is one of the few regions where the response to climate change has been included in the action documents. The region has good agricultural, touristic and educational assets, the preservation of which is a central task. The main objective is to retain the local labour force, which requires a corresponding expansion of the infrastructure. The respondents expect sensible investments to be made in order to increase the region's competitiveness.



Southern Transdanubia

↙ Driving forces

- the spread of data-driven corporate management and strategy development
- developing local SMEs and promoting their integration into value chains
- mobility
- labour shortage
- income inequalities
- vocational education and training (VET)

The main cause of the problems in the region lies in social inequalities. The number of disadvantaged settlements is high compared to the rest of the country and the employability of the people living here is very difficult. There is a major labour shortage in the region, even though it has one of the largest potential workforces, but people's qualifications are extremely low. So while large companies tend to attract qualified labour, there are not enough qualified workers left for SMEs. Another reason for the lack of development is the very poor infrastructure, resulting in very low mobility for people in the smaller villages. Companies in the region are eagerly awaiting an education reform that would introduce the region's able-bodied but unemployed inhabitants to the world of work. This also demonstrates the driving force behind data-driven corporate management, which would mean considerable savings for companies, even in terms of labour.



Northern Great Plain

↙ Driving forces

- the indebtedness of the population
- level of employment
- staff turnover
- vocational education and training (VET)
- foreign working capital investments
- mobility

The Northern Great Plain region has one of the highest household debt ratios and the poor social situation also affects the labour supply, as the results of the workshops showed. It can be assumed that the debt trap increasingly affects a typical social group, which impairs their legal employability. The region has high hopes for foreign investment in the electronics and automotive sectors, although companies and even the government admit that there is a shortage of Hungarian labour. Companies are poaching each other's labour, hence the high staff turnover. The only way to improve this is to increase productivity, which requires improvements in the education system at national level.



Northern Hungary

↙ Driving forces

- low level of education
- wage developments
- low-paid jobs
- vocational education and training (VET)
- poor infrastructure
- low willingness to learn

Among the Hungarian regions, the average educational level of the population in Northern Hungary is one of the lowest, which fundamentally limits the growth potential of companies. Low-skilled workers also have below-average productivity, so their wages are generally low. The companies are also not in a position to grow, which is why the average wage level is barely above the minimum wage level. In addition, commuting to neighbouring regions is becoming increasingly common. The companies are well aware of the situation and know that an immediate improvement in the level of education is necessary if the development of the region is not to depend solely on social transfers. This will require broad social progress, which may take more than one generation.



Central Transdanubia

↙ Driving forces

- barriers to entering dual training
- enormous administrative effort for EU applications (dual training)
- the existence of employee needs in VET
- introducing a corporate approach to education
- The mismatch between supply and demand on the labour market (“skills mismatch”)
- integration of migrant workers

The Central Transdanubia region is one of the most developed regions in Hungary. It is an industrial district with a wide range of supplier connections, where there is virtually no unemployment, but where there is a major labour shortage. The average wage level is higher than the national average, attracting labour from other regions. However, education capacities in the region need to be significantly improved in order to support growth. Companies in the region would like to play a greater role in VET and to have their own perspective in education. This would enable the education system to produce “ready-made” students who could be integrated into production in a short time with minimal training time.

It was also the only region whose representatives argued that the lack of EU tenders had dried up favourable funding opportunities and that an alternative (non-region-specific) national solution was therefore needed.



Western Transdanubia

↙ Driving forces

- employability of low-skilled workers
- the development status of SMEs
- the rise of the electric vehicle industry
- the impact of climate change on agriculture
- utilisation of the tourism potential
- migration

The Western Transdanubia region is most exposed to the risk of labour migration due to its proximity to the Austrian border. It is not only the relatively nearby industrial districts that attract spare capacity, but also Austrian companies, where German is often no longer necessary as the entire shift speaks Hungarian. Thus, the region is really looking forward to the rise of the electric vehicle industry, as unlike traditional plants building vehicles with combustion engines, electric vehicle plants require far less labour, hopefully freeing up a significant number of workers and alleviating the current, very depressing labour shortage. A special feature of the region is that the agricultural areas in Vas and Zala Counties are highly exposed to climate change, which may prevent the cultivation of certain crops or at least fundamentally change farming. This must be tackled as soon as possible, and preparations should be made to increase the region’s competitiveness.

03.

TRENDS DETERMINING THE FUTURE OF THE HUNGARIAN LABOUR MARKET IN A TEN-YEAR PERSPECTIVE

Following an analysis of the driving forces and based on the results of the workshops, the following five trends were identified as the most likely to shape the labour market up to 2035. The direction of their impact depends on the direction in which the driving forces listed above evolve. These are summarised below.

ACCELERATED AUTOMATION



According to a study conducted in two industrial sectors (*Bogó-Vakhal, 2022*), which was completed by MGYOSZ in cooperation with KOPINT-TÁRKI and Vasas, the Hungarian Metalworkers' Federation in 2022, labour market actors are aware of the changes caused by automation and digitalisation, they feel the need to adapt, but they do not feel that either their competitiveness or their jobs are threatened by technological developments. Recent developments have been aimed at alleviating labour shortages, according to the study's findings, but the labour market actors interviewed believe that the workforce could be more affected by these processes if labour shortages ease and developments accelerate. These are mainly low-skilled workers who mostly carry out jobs requiring physical skills. The experts involved in this project have come to the conclusion that automation will be accelerated by labour shortages over the next 10 years. Investments in automation are a relatively high one-off cost that quickly pays for itself if the right labour is available[1]. This project confirmed the results of our previous study, which found that workforce adaptability is key to the long-term sustainability of the labour market if automation and productivity growth are to go hand in hand. In Hungary, up to 900,000 employees could be affected by this process in the 2030s, mainly blue-collar and unskilled workers and operators working in industry, transport and transport-related sectors and construction. (This sector accounts for 50% of the Hungarian labour force - *PwC Hungary*). In addition to the importance of comprehensive education reform, job retention schemes for older workers are key. Young people are more adaptable to technological developments and the development of basic skills and soft skills (problem solving, creativity, independence, team spirit, good communication, project-based learning) can be the starting point for appropriate adaptation.

The project also identified the spread of data-driven business activities as a driving force that may push not only manual labourers to adapt, but also the service sector (financial services, SSCs, IT, communications), which mainly includes Budapest-based companies.

This is also reflected in our company survey, which shows that data analysts and business intelligence developers will be the most in-demand jobs by 2035, followed by cloud engineers and then jobs related to business development, the optimisation of production processes and sales, all of which use the achievements of digitalisation to streamline these activities.

The impact of automation on regional labour markets will depend on which sectors dominate employment (in terms of value added and technology/skill intensity), the age and skill mix of the workforce and the ability of the local labour market to provide the right mix of workers.

It is important to note that, as a counter-trend, there is the need for the so-called slow life. This includes all phenomena associated with sustainability, closeness to nature and the emerging need for relaxation in a fast-paced world. For young people in particular, a job today means something

[1] According to the MGYOSZ study, small technical improvements aimed at continuous modernisation should be distinguished from larger investments involving labour and expertise.

completely different than it did a few decades ago. For Generation Z, flexible working and a good work-life balance are of the utmost importance.

The availability of an appropriate range of digital tools, mobile and fixed network infrastructure for high-speed data communications and cloud services both at work and at home is a matter of course today and even more so in the future. This trend is likely to increase, especially among highly skilled and urban white-collar workers, so that poorer regions in a quiet natural environment could benefit from attracting domestic and foreign residents who work remotely.

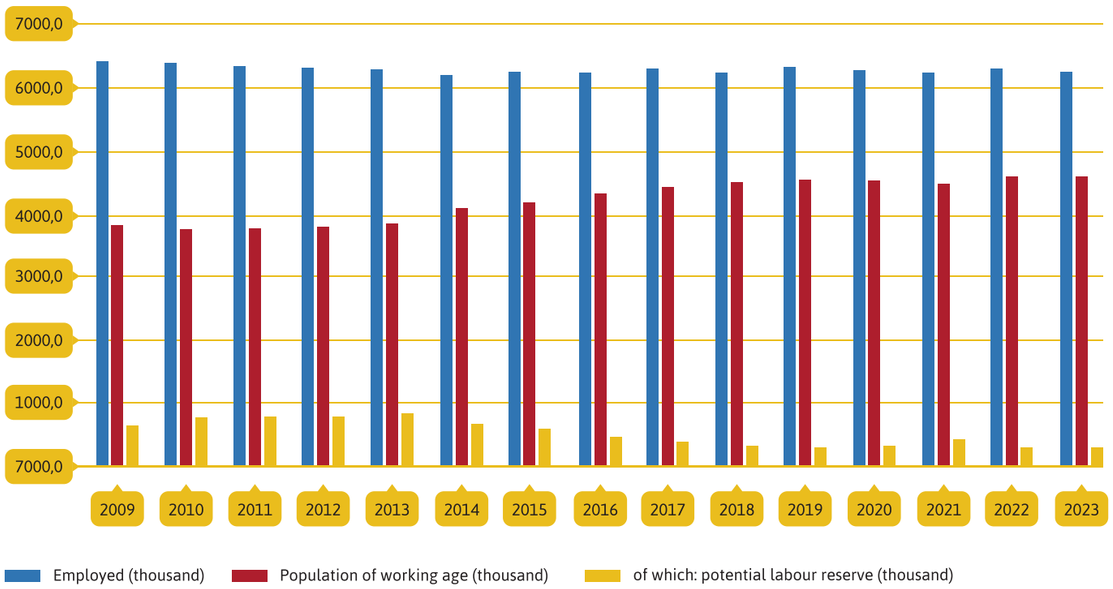
INCREASING LABOUR AND SKILLS SHORTAGES



Labour and skills shortages are a widespread problem in all European countries today. While there is currently not enough labour available and their skills and qualifications do not match the demand on the labour market, new trends will influence labour supply and demand in the longer term. In the future, the labour force will not only have to meet the demands of economic growth and competitiveness, but also adapt to the requirements of sustainability and technological progress, which requires not only the adaptability of workers, but also of economic policy and the education system. According to a study by BusinessEurope, the largest European employers' association, the European labour market will lose 35 million people from the working-age population by 2050. In Hungary, this amounts to around 30,000 people per year, and society's labour reserves are also dwindling. At the same time, the employability problems of the marginalised social groups remain unresolved, so starting to help the inactive working-age population catch up is a fundamental economic necessity for the next 10 years and requires intergenerational solutions. In the four poorest regions (Northern Great Plain, Northern Hungary, Southern Transdanubia, Southern Great Plain), there is a significant population decline, the extent of which between 2011 and 2020 was 9 per 1000 inhabitants in Northern Hungary, 7 in Southern Transdanubia and the Southern Great Plain and 5 in the Northern Great Plain, while the annual increase was 8 in Pest County. The population decline in Central and Western Transdanubia has stopped since 2017 (*European Commission, 2023*).

MGYOSZ has found that even during the COVID-19 pandemic and the associated lockdowns, companies found it difficult to find qualified labour. Our background study shows that the post-pandemic recovery was faced with severe labour market restrictions and that the Hungarian labour market became even tighter. With the exception of the Northern Hungary region, where respondents did not experience any problems with recruiting staff, the other regions reported problems with excessive salary expectations and lack of experience. Budapest stands out for its lack of experience, while in the Central Transdanubia region the high salary expectations of unskilled labour were a problem.

Economic activity of population of working age by sex, quaterly **2009-2023**



Source: KSH

The global and local trends and economic changes listed here all have an impact on the mobility readiness within and across national borders. If the observed trends turn negative, migration could increase, which could have different effects in some regions of Hungary and increase the economic demand for external labour from third countries. According to MGYOSZ, foreign labour supply is a long-term perspective, as it is the only way to offset the adverse demographic changes over the next ten years.

Our background study analysed how long it currently takes companies to find new workers. The results show that the proportion of those saying “we found a new employee within a short time” has fallen very sharply for all levels of education compared to pre-pandemic levels. While before the pandemic, more than a quarter of respondents said they had found a new unskilled job almost immediately, only 11% are now in such a favourable situation. For jobs requiring a secondary vocational qualification, the 10% rate has halved, while the 20% rate for jobs requiring a vocational qualification based on a school-leaving certificate but not a university/college degree has fallen to 7% and the 15% rate for jobs requiring a university/college degree has fallen to 3%.

Looking at the problem in a regional context, we see that most of our respondents who were unable to find new employees with a secondary school qualification or without a qualification, or who only found them after a year or so of searching, represent companies in the Western Transdanubia region. (This is most likely due to the pull effect of the nearby national border.) The most frequent complaints about the lack of university/college graduates came from companies in the Northern Great Plain and in Budapest.

During our project, business participants made a clear demand for predictability with regard to the supply of labour from third countries. This stability can be achieved by strengthening civil and social dialogue at regional and company level. In the long term, this can ensure a smooth adaptation of foreign workers to local communities and create sustainable employment frameworks, thus supporting labour peace in the workplace.

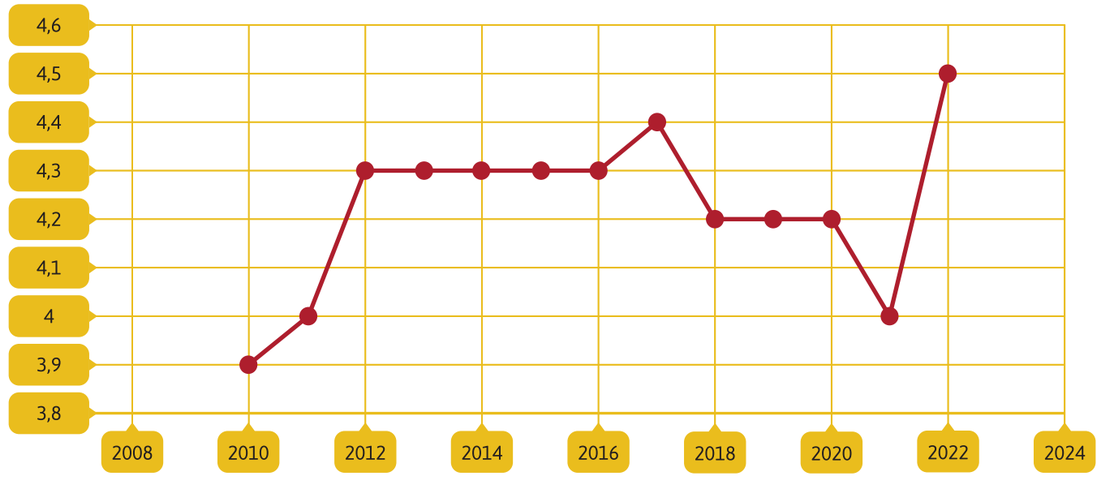
GROWING SOCIAL INEQUALITIES



The widening income gap is also a challenge for policy makers at European level, according to the European Commission's Strategic Foresight 2023. Inequalities between the Member States have decreased, but inequalities within the Member States are increasing almost everywhere. The increase in social inequalities in Hungary has been a trend since the early 2000s. The Data from the Hungarian Central Statistical Office (KSH)[2] clearly show that this phenomenon has intensified in the years following the COVID-19 pandemic: The ratio between the income of the top 20% of the population and the income of the poorest 20% was at its highest level in 2022, looking back over a decade. This trend is likely to have intensified further in 2023, as indicated by data showing that overdrafts reached a 3-year record in 2023 and are likely to be used for short-term consumption purposes (*Bank360, 2023*). Feedback from companies and labour market experts indicates a trend of increasing indebtedness in Southern Transdanubia, the Northern Great Plain and Northern Hungary, with the impact on the labour market mainly reflected in the willingness to work. As employers are obliged to deduct the debt from the wages of debtors subject to judicial enforcement, indebtedness reduces/annuls the net income, so there is no incentive for employees to take up legal work. Getting out of the debt trap can take longer than the persistence of economic phenomena that exacerbate poverty (rising energy prices, high inflation, etc.). It should be noted, however, that it is of course not the task of employers to combat the debt trap, as the responsibility is borne by both public regulation and the individual. In some cases, however, the latter can be supported by training and appropriate information. Empirical evidence of the positive effects of financial education in the school system confirms its effectiveness (*Mandell, 2009*). The experience gathered during the project indicates that increasing indebtedness can drive debtors into undeclared work and contribute to the migration of able and willing employees.

[2]Income inequalities according to the Gini coefficient and the S80/S20 ratio

S80/S20 ratio (top to bottom income quintiles)



The worsening income situation can have an impact on the already low mobility of the rural workforce, as it further reduces their willingness to work and learn, further increasing income polarisation in disadvantaged regions suffering from both unemployment and labour shortages. These effects can be particularly pronounced in areas with poor infrastructure. If there is no public transport, residents are forced to buy and maintain a vehicle, which can consume a significant portion of their income.

There are also considerable differences between the regions in terms of the proportion of the population at risk of poverty and social exclusion. In Central Transdanubia, this proportion is 9.7%, while in the four least developed regions it is over 20% (in Northern Hungary it is as high as 28.7%). There are significant differences in the risk of severe material and social deprivation (2020), which affects less than 10% of the population in Central and Western Transdanubia, but 12.4% in Southern Transdanubia, 20.3% in Northern Hungary and 15.4% in the Northern Great Plain (*European Commission, 2023*).

The need to strengthen social cohesion was identified as an important factor in the scenarios of our project, and the driving force is no longer only the existing marginalised groups (especially in the three poorest regions), but also the growing number of foreign workers, which is expected to become a permanent phenomenon in all regions within a time frame of 10 years. As the economy and the labour market will need external workers in the long term, it is also in the economic interest to strengthen the integrative attitude of Hungarian society.

Based on the scenarios outlined in the project, cooperation between large companies and local civil society could play a key role in strengthening social cohesion at regional/county level, which is determined by the corporate culture, social responsibility and level of development of the local civil society of large companies and their involvement in regional economic development. In addition to the above, the most important driving forces of social polarisation in Hungary over the next ten years are likely to be the development of energy prices, the different effects of environmental and climate issues in the regions, the inflow of foreign working capital, related infrastructure investments and the direction of government social policy.



THE STRENGTHENING OF ECONOMIC DUALITY

A flourishing economy is the basis for a well-functioning labour market. A positive aspect for Hungary's economic development is that Hungary is one of the most open economies in the EU, with exports accounted for 90% of GDP in 2022[3]. The Hungarian indicator is well above the EU and V3 average (56 and 43% respectively). At the same time, the import share of exported products is high, with only 54% of domestic value added (in 2020), making it the second-lowest among the industrialised countries of the EU after Slovakia (52.3%)[4]. The share of domestic value added is particularly low in the manufacturing industry (42.7%), and here again the automotive industry. In this sector, the share of domestic value added in exports is only 33%, the second lowest in the world after Slovakia.

The economic duality is reflected in the fact that the value added in Hungarian manufacturing exports is mainly generated by large companies, while the direct value added of SMEs lags far behind that of multinational companies. However, indirect supply (via large suppliers) is already sporadically present, but its assumed share of the population is still quite low. Calculations show that the vast majority of Hungarian SMEs are not able to participate even indirectly in international value chains, with the Hungarian market and Hungarian households being their main customers *(Vakhal, 2019*). Increasing domestic value added is the key to inclusive economic growth (*Nagy, 2023*). It should be noted here that value added can be increased in many ways, but sustainable economic growth can only be achieved through productivity growth. And productivity growth is first and foremost a social and educational task and only secondarily a matter for companies. The findings from the project show that labour market actors, particularly in border regions, see an optimistic labour market scenario as a result of new investments by global companies. However, it should be noted that this approach is not necessarily sustainable. Foreign direct investment also brings knowledge with it, but this is rarely used by anyone other than the investor, as it usually involves proprietary know-how and requires highly skilled labour to use it productively. The idea

[3]Higher values are almost only recorded in the Gulf States.

[4]Cyprus, Malta and Luxembourg have lower values, but in these countries, exports tend to include services.

that a foreign company will bring productive investments that generally increase prosperity in the region is therefore an illusion and is not enough on its own. In the long term, it is important to strengthen the domestic SME sector by providing a well-trained labour force and improving innovation potential.

The questionnaire survey showed that the *export-oriented companies* in our sample showed an above-average interest in consolidating their current contact network. When asked how important they thought certain activities would be for them in ten years' time, sales, marketing and online content development received a medium or lower rating, while HR management and cloud services were almost universally rated as excellent. When we asked respondents to list up to five skills that they believe will be most urgently needed in their workplace in the future, almost all export-oriented companies named occupations that are still relevant to their work, e.g. welder, toolmaker, machine operator, machine setter, electrician, forklift driver, seamstress, tailor. Only a few of them put mechanical engineer, electrical engineer, IT specialist and AI expert on the list.

CLIMATE CHANGE AND RENEWABLE ENERGIES AS ECONOMIC DRIVERS

In the next decade, climate change will become increasingly noticeable in Hungary, and the interdependence of the economy and the environment will become ever more apparent. The focus will be on access to energy resources for the economy and the population as well as some water management issues that are of great importance for both industry and agriculture in Hungary. This could be particularly important in the eastern regions of Hungary, where water management issues are already at the centre of economic debates.

The trends listed here interact with each other. The pace of the green and digital transition is not only a key factor for competitiveness, but its scale will also determine productivity, increase or decrease income inequalities and largely shape the skills and competences that the labour market will need in a ten-year perspective. We therefore believe it is extremely important that, in addition to the accelerating trends, environmental and associated social sustainability aspects are also taken into account throughout economic policy decisions, with the focus on improving economic competitiveness.

According to the European Semester, the instrument of European economic regulation, competitive sustainability is based on four dimensions:

1. **environmental sustainability**
2. **fairness**
3. **productivity**
4. **macroeconomic stability**

The impact of the green transition on the labour market is most evident in the sustainability of economic competitiveness: job-creating investments in line with environmental sustainability can increase the country's competitiveness, which should be supported by education and labour market policies. The green dimension is expected to go hand in hand with automation and the emergence of new technologies, which the labour market must be able to supply with green skills, with suitable digital skills and knowledge in all fields.

There is not yet enough data available from Hungary to show the labour market potential of the green transition and the green economy. Currently available data show that resources invested in the green economy have almost three times the employment potential of traditional investments, while training and retraining are crucial to fill green jobs, as future jobs require higher skills than non-green positions (*G7.hu*).

In this sense, MGYOSZ emphasises the need to monitor the needs and forecasts of companies regarding the demand for skills and competencies in connection with any investment in so-called green investments. For skills forecasting, there are now several international examples of data-driven collaboration between policy makers and online job portals to jointly forecast the future skills needs of the market based on data directly from companies.

A DRIVING FORCE FOR REGIONAL CONVERGENCE AND SUSTAINABILITY: INCLUSIVE AND HIGH-QUALITY EDUCATION

The five trends outlined by MGYOSZ and its partners can have a positive impact on the labour market and reverse the trends in a positive direction if the education system can adequately serve the needs of the labour market. Education is the key to balancing regional economic imbalances, as it can support the competitiveness and sustainability of the local economy in line with labour market needs if it can adapt flexibly to demand and provide trainees with the appropriate skills. The elimination of economic imbalances in the regions, in particular the social integration of marginalised groups, can also be achieved through education.

The clear message from both the background research supporting our forecasts and from our scenario planning workshops is that the key to a successful labour market in optimistic scenarios is a comprehensive reform to create a competitive education system that can produce a skilled workforce in line with labour market demands. As comprehensive education reform can only be effective in the long term, a competitive VET system based on comprehensive and intensive cooperation between companies, policy makers and educational institutions is the best way to ensure that supply and demand are in line by 2035.



The regional differences are also reflected in the educational results. The share of early school leavers in 2021 was 22.3% in Northern Hungary, 16.9% in the Northern Great Plain, only 5.4% in Budapest and 6.8% in Western Transdanubia. The share of young people not in employment, education or training is 6% in Central Hungary, 8.1% in Central Transdanubia and 5.8% in Western Transdanubia, while it is strikingly higher in Northern Hungary (18.4%) and the Northern Great Plain (17.1%) and in rural areas (17.2%). The share of 25- to 64-year-olds with less than primary education, primary and lower secondary education is significantly higher in the four least developed regions (Northern Hungary: 21.8%, Northern Great Plain: 20.8%, Southern Transdanubia: 18.2%) than the national average, which in turn is lower than the EU average (13.7% compared to 20.7%). In addition, the share of young people with a low level of education in Northern Hungary is on the rise: 26.0% in 2021 compared to 20.2% in 2017. In 2021, the share of people with tertiary education (29.3%) was below the EU average (33.4%) or just above (25%) in all regions except Budapest and Pest County (55.5% and 33.4% respectively) (*European Commission, 2023*).

TRENDS SHAPING THE FUTURE OF THE HUNGARIAN LABOUR MARKET



EDUCATION AND TRAINING



ACCELERATED AUTOMATION





CLIMATE CHANGE AND RENEWABLE ENERGIES AS ECONOMIC DRIVERS



INCREASING LABOUR AND SKILLS SHORTAGES



GROWING SOCIAL INEQUALITIES



THE STRENGTHENING OF ECONOMIC DUALITY

*Source: European Commission

HOW DOES THE QUALITY OF EDUCATION AFFECT THE DEVELOPMENT OF THE FIVE TRENDS MENTIONED ABOVE?

The acceleration of **automation and the green transition** are systemic changes that require systemic adjustments in the labour market. Both trends will eliminate jobs, but also create new ones, which are expected to result in productivity with higher added value, higher wages and a higher standard of living. However, it is worth bearing in mind that jobs disappear unexpectedly and new ones are created more slowly, and that only those employees who have the right skills and abilities to acquire the qualifications required for the new jobs will find a new job quickly. It is important that a retraining-oriented labour market policy focuses on employees with flexible learning skills and not on maintaining low-productivity jobs. This is important because, as a result of these trends, jobs are likely to disappear faster than new ones are created and therefore the adaptability of the labour force can only be ensured through retraining. Failure to do so, particularly in less economically developed regions, could accelerate labour migration and exacerbate labour shortages, while at the same time increasing unemployment

.

Increased investment in education and skills to enable people to adapt to technological change throughout their careers, particularly in STEM skills, is key to the success of the digital and green transition. This highlights the importance of primary and secondary education. The lack of basic skills among school leavers has been a driving force in all regions, with literacy being a key determinant of digital skills, and all other skills, be they technical, technological or scientific, can only be learnt with the right basic skills. In order to create the capacity for lifelong learning, the quality of basic education must be improved as a prerequisite for a successful individual career and adaptability to the labour market.

Our education system is no longer able to meet the current challenges of the labour market, while digital technologies, including generative artificial intelligence, are creating new teaching and learning opportunities, both for regular schooling and for lifelong and workplace learning. This poses challenges for the education system, for example in terms of teachers' digital literacy, pedagogical approaches, ensuring the quality and reliability of the systems and their content, and ensuring equal opportunities (such as access to basic technological learning infrastructure and learning resources). Looking at the development of artificial intelligence over the last year or two and the concerns related to learning and education, it is clear that technology will have a significant and rapid impact not only on learning but also on the acquisition of learning materials and teaching methods over the next decade.



The **socio-economic background** of students determines their educational performance all over the world. Poor school performance is not automatically due to socio-economic disadvantage; in many countries, schools tend to reproduce existing patterns of socio-economic advantage and disadvantage rather than creating a more equitable distribution of learning opportunities and outcomes for students. The global trend towards deteriorating performance is also a cause for concern. As the OECD's PISA programme shows, there are major differences between countries in the extent to which the socio-economic situation of students influences learning outcomes. This suggests that it is possible for countries to develop equitable education systems that reduce the impact of students' socio-economic background on achievement and outcomes. The Hungarian PISA results are not worse than the OECD average, but the situation is worse in that the Hungarian education system reproduces social inequalities; PISA shows, for example, that the results in maths are 30% better for students with a high social background than for the poorest. Hungary consistently scores poorly in social mobility rankings with by far the lowest social mobility among OECD countries (*OECD, 2024*). This indicator measures the socio-economic situation of individuals throughout their career and is closely linked to equal opportunities factors. It shows how likely someone is to succeed in life, regardless of their parents' socio-economic background, gender, age, sexual orientation, race, ethnicity, place of birth or other circumstances beyond their control. OECD research on social mobility makes it clear that inequality begins at birth and depends to a large extent on the willingness of a country's environmental, education and health systems to help disadvantaged people get ahead. An inclusive education system is able to compensate for the disadvantages brought from home, which is a fundamental economic and social interest in the face of several rapidly changing and far-reaching megatrends. **Integration of marginalised groups begins with ensuring equal access to quality education. In the long term, this will make it possible to mobilise the internal labour reserve by improving employability and the socio-cultural situation, but in a ten-year perspective, this work cannot have a sustainable effect.**

Such socio-cultural and income-related differences can also be decisive within the regions: The three most disadvantaged regions have high-quality higher education institutions (Miskolc, Pécs, Debrecen), which can only have a truly positive impact on the labour market and the local economy if both the local SME sector and local foreign investors can benefit from the innovation capacity offered by the proximity to the universities. From the findings of the workshop in the

Southern Great Plain we know that high-quality higher education can be an attraction (Szeged), as many university students want to stay in the city, which can be guaranteed by appropriate jobs. We therefore consider it important that Hungarian universities are intensively involved in the R&D activities of companies and that co-operation between the business sector and universities is intensified in all regions.

The availability of well-skilled labour is key to **increasing the productivity of SMEs** and an essential prerequisite for integrating local companies into the supply chains of global companies. In Hungary, almost 70% of the labour force is employed in the SME sector, which accounts for only 56.2% of value added (*European Commission, 2023*). In order to improve productivity (value added per employee) and thus raise wage levels in the SME sector, it must be ensured that this sector has access to well-qualified labour and can participate more easily in the dual vocational training system.

In the age of automation, Hungarian SMEs are among the last in Europe to utilise digital technologies. According to the Digital Economy and Society Index (DESI 2022), 21% of companies use business resource planning software to share information electronically (EU average: 38%); 13% each use social media (EU average: 29.2%) and e-invoicing (EU average: 32%). The situation is similar for cutting-edge technologies: In the areas of artificial intelligence, cloud services and big data, Hungary is also well below the EU average. The use of these services was between 3% and 21%, compared to the Digital Decade target of 75% set for 2030. SMEs require particular political attention, as only 34% of them have at least basic digital intensity (EU average: 55%), while the Digital Decade target is at least 90%. 49% of people have at least basic digital skills, which is well below the EU average of 54%. 3.1% of university graduates completed IT-related studies (EU average 3.9%) and the share of IT specialists is still relatively low (3.9% compared to 4.5% in the EU). Hungary has high coverage with high-speed broadband networks and very high-capacity networks compared to the rest of the EU, but 5G mobile internet coverage is one of the lowest in the EU. Broadband internet is relatively expensive compared to the average income in Hungary, which is partly due to the sector-specific taxes on telecommunications. Broadband access is particularly low among SMEs (*European Commission, 2022*).

There are also considerable regional differences in IT usage, both between regions and between rural and urban areas. In 2021, the share of people using the internet to contact authorities was 89% in Budapest and 68% in the Northern Great Plain, 83% in cities and only 60% in rural areas, which is closely related to the level of digital skills of the population (*European Commission, 2023*).

Although the **labour shortage** in Hungary is mainly due to demographic factors, an appropriate level of education can improve the employability of the internal labour pool in the long term. It is important to note that even in disadvantaged regions it is possible to find a job with the right qualification, so that acquiring a qualification can help to slow down labour migration if necessary. In the long term, the aim is to improve productivity in general, as only jobs with high productivity can pay high wages. And the skill level of the available labour force is a clear factor in the development of corporate productivity.

The most obvious takeaway from all our regional events was that VET is the driving force that can most quickly improve the employment situation in the region. Driving forces for VET include the lack of adequate basic skills, efforts to increase co-operation between the business sector, VET institutions and policy-making, better alignment of curricula with the needs of companies in VET and easier access for companies to the dual vocational training system. These are the factors which, in the long run, will determine how the Hungarian labour market can adapt to trends and adequately support the local economy, regardless of regional differences.

We believe that improving the outcomes of VET, particularly through the expansion of dual training, is the factor that can most rapidly improve the labour market situation caused by current labour and skills shortages and deliver results in a timeframe as early as 2035. The business sector needs a work-based vocational training system that makes skilled labour available to SMEs in the same way as to large companies engaging in dual training and develops curricula that reflect the qualification needs of SMEs in terms of both quantity and quality. In 2018, the MGYOSZ published its position paper **"A tudásalapú, innovatív társadalom szakképzésének stratégiája"** ("Strategy for vocational education and training in a knowledge-based, innovative society"), which was also drawn up taking into account the experience gained from a series of national events. In this package of proposals, we have set out MGYOSZ's vision for a competitive public education and vocational training system and we are proud that over the years many of our proposals have been incorporated into legislation and the VET system, but full implementation is still pending. We therefore believe that the points set out in this paper remain relevant and represent an important starting point for MGYOSZ's lobbying work. At the centre of the vision remains a work-based VET system in which students have the opportunity to learn a profession through work, regardless of their age, skills and qualifications. SMEs that are not in a position to enter the current dual training system should be supported in joining the dual training system in a flexible VET system adapted to their market needs. While most SMEs are not in a position to create the conditions for dual training themselves due to the excessive financial and administrative burden, there are already good practices in Hungary for setting up a sectoral training centre through a partnership of SMEs. The presentation of good practices, the creation of a flexible legal framework and the support of companies and business communities wishing to enter dual training are key to adapting the labour market in a ten-year perspective.

In this summary, we have taken into account the driving forces and trends that emerged from the workshops. In a broader context, however, it is important to note that Hungary, as a small and open economy, is exposed to a number of trends and processes that were not mentioned by the experts in the workshops. Developments within the EU or anything that affects the functioning of global supply chains therefore has an impact on the Hungarian economy and the Hungarian labour market. In many cases, these are impossible to measure and predict. It is equally difficult to perceive the cultural process that results from global trends, affects different groups of workers differently depending on generation, labour market situation and level of education, and determines labour market conditions, attitudes to work and learning, labour market expectations and individual career paths; all of these factors have a major impact on the future of a particular labour market. We therefore believe that although it is very difficult to plan ahead in such circumstances, considering possible future scenarios can help those involved to prepare for the unknown and thus adapt.

As a continuation of this project, MGYOSZ will examine the potential impact of the green transition on the labour market in the Hungarian regions in its next strategic foresight for 2024 and 2025. The continuation of the project, along with several other elements, will aim to provide companies with information and support in developing social sustainability programmes.

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