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***Assessment of the Labour Force and
Employment Situation***

SZABOLCS-SZATMÁR-BEREG COUNTY,

NORTHERN GREAT PLAIN REGION

SECONDARY DATA ANALYSIS

ÖTLET A VIDÉKÉRT ASSOCIATION

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1. GENERAL INFORMATION

Country: Hungary

County/region: Szabolcs-Szatmár-Bereg county, Northern Great Plain Region

Partner organisation: Ötlet a Vidékért Egyesület (Idea for the Region Association)

Date of submission of the report: 15/05/2025

2. OBJECTIVES OF THE STUDY

The aim of the study is to analyse existing data on labour force and employment conditions in Szabolcs-Szatmár-Bereg County, within the Northern Great Plain Region, with particular attention to changes driven by current challenges. These include the rapidly increasing inflow of foreign labour, automation and digitalisation, the development of artificial intelligence, and the consequences of the war in Ukraine. At the same time, the study places strong emphasis on long-standing trends that have been present for decades, such as the ageing of the population and the barriers caused by the shortage of skilled labour.

The study seeks to provide a clear, data-driven assessment of labour market dynamics, including changes in the composition of the labour force, employment-related challenges, and emerging trends, in order to inform targeted interventions and support the development of effective labour market policies in the region.

3. DATA SOURCES AND METHODOLOGY

Time frame for data collection: 2022 (census data) – March 2025

Methodology used for data analysis:

The research methodology, the target groups and the formal and professional requirements of the studies to be completed as a result of the analysis were established by the AGES Association, which initiated the project. Project partners could actively participate in the development of the methodology by making suggestions. The main expectation of the joint work of the experts was to prepare comparable analyses based on a uniform methodology in the three countries concerned (Hungary, Romania and Ukraine). This approach ensures that data and results on the labour market and the situation of vocational training in border regions are comparable to each other, thus providing a comprehensive picture of the specificities and challenges of the entire border region.

During the secondary analysis phase of the research, our aim was to provide a comprehensive and contextualised overview of the labour market situation in Szabolcs-Szatmár-Bereg County by processing the available public data and relevant research materials, which would serve as a basis for and help interpret the results of our primary research (questionnaire and interview-based studies). Within the framework of the secondary data collection, we paid particular attention to those demographic, economic, and labour market trends that determine the specific characteristics and challenges of the region.

For the analysis, we mainly used the results of the 2022 census of the Central Bureau of Statistics and

TEIR (Regional Statistical System) data, which allowed comparisons at both national and regional levels. With the help of these indicators, it has become possible to map regional differences in labour supply, differences according to population ageing processes, as well as employment and unemployment trends.

Other important sources were, for example, the report of foreign employees and the supporting data published by the Ministry of National Economy, the regional business statistics and turnover of the National Tax and Customs Administration, but also the labor market reports of the online job portal Profession.hu, which presented the recruitment practices of employers and the evolution of the demand for professionals.

During the secondary research, we also incorporated academic and policy studies into the interpretation, which shed light on the background of migration and employment trends affecting the region. With these, we aimed to provide a more nuanced picture behind the statistics and to explain them. However, it should be noted that during the examined period very few materials of this type were produced at county level, therefore we also considered it necessary to include newspaper articles in our analysis.

During the processing of the data, we paid special attention to territorial differences. On the one hand, we examined the differences within the county, focusing on which areas show particular types of human resource shortages, and where the factors that hinder labour market integration appear most strongly (for example mobility or qualification-related barriers). On the other hand, it must also be noted that Szabolcs-Szatmár-Bereg County is one of the regions with the most unfavourable labour market situation in national comparison, therefore the county's long-term employment difficulties, its relatively low activity rate, and the strong presence of long-term unemployment justify analyses of this kind. It is important to highlight, however, that data below the county level, such as district-level data, are available only in certain subject areas, therefore this depth of analysis was unfortunately not possible for all questions.

Overall, our aim was to organise the indicators from the different sources thematically, so that they would not appear merely as numerical data on their own, but would reflect the real labour market challenges of the region in a complex way. Therefore, we considered not only the absolute values, but also their changes over time and their position relative to national or regional averages.

4. DEMOGRAPHIC CHARACTERISTICS OF THE LABOUR FORCE

Total number of employed persons

The development of the economically active population in Szabolcs-Szatmár-Bereg County over the past decade shows a continuous, if not steep, but clearly observable increase both in absolute numbers and in the activity rate. While in 2014 the number of economically active people was only 248 thousand, with an activity rate of 64.9%, by 2024 this figure had risen to 256.3 thousand, with an activity rate of 76.5%. Data from 2023–2024 show that the county's activity rate is approaching the national average (78.2% and 78.6%) (Hungarian Central Statistical Office – KSH, 2024).

Based on the 2011 and the most recent 2022 census data, the employment rate increased by more than 16 percentage points: while in 2011 it was 43.1%, by 2022 it had reached 59.2% among the population aged 15–74 (KSH, 2022). The number of employed persons was 242.8 thousand in 2022

(KSH, 2022).

Employment rate by sector

The employment structure of Szabolcs-Szatmár-Bereg County clearly reflects the economic characteristics and structural challenges of the north-eastern region. The largest share (17.5%) is represented by occupations that do not require formal qualifications (simple occupations), showing that the labour market of the region relies significantly on low-skilled labour. Occupational groups related to industry, such as industrial and construction jobs (13.5%) and machine operators, assemblers and vehicle drivers (12.9%), together account for nearly one quarter of all employed persons.

In contrast, the share of agriculture and forestry occupations, although the region is widely known for its agricultural character, is only 3.1%. On the one hand, this indicates the declining weight of agriculture, but on the other hand it also suggests that the sector no longer provides a significant number of stable, formally registered jobs, while day labourers and casual workers may remain hidden from statistics.

Higher value-added, knowledge-based occupations, such as managerial and professional positions or jobs requiring higher education, together account for 16.8%. At the same time, the service sector is becoming increasingly prominent: commercial and service occupations (14.6%), office and administrative jobs (5.3%), and other human service occupations requiring secondary or higher education (15.9%) together cover nearly 36% of all employed persons (KSH, 2022).

Overall, the employment structure of the county continues to be – and increasingly is – characterised by the dominance of low value-added jobs and industry. While in 2011 the distribution of these major occupational groups still showed a more diversified picture, and the north-eastern and eastern edges of the county were mainly dominated by occupations requiring unskilled labour, alongside districts dominated by industry or commerce, by 2022 the employment structure of the county had become strongly one-sided. With the exception of the Nyíregyháza district – where occupations requiring secondary or higher education, although not necessarily representing the highest value-added, dominate – in all other districts the occupational group not requiring formal qualifications has become the most significant (KSH, 2023).

This development may also have been influenced by the strengthening of public employment programmes, as well as by the multiplication of factories employing largely foreign labour.

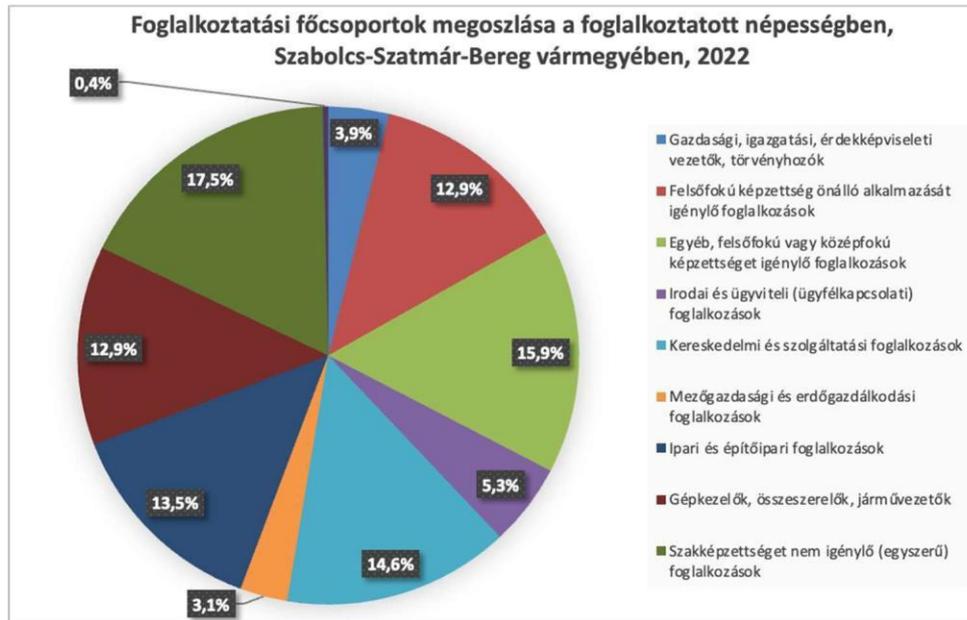


Figure 1: Distribution of Major Occupational Groups within the Employed Population in Szabolcs-Szatmár-Bereg County, 2022 Source: own edition based on data from the Central Statistical Office (2022)

Legend (categories):

- Economic, administrative and interest-representation leaders and managers – 3.9%
- Occupations requiring higher education and independent professional work – 12.9%
- Other occupations requiring higher or secondary education – 15.9%
- Office and administrative (customer service) occupations – 5.3%
- Commercial and service occupations – 14.6%
- Agricultural and forestry occupations – 3.1%
- Industrial and construction occupations – 13.5%
- Machine operators, assemblers, vehicle drivers – 12.9%
- Occupations not requiring formal qualifications (simple occupations) – 17.5%
- Armed forces occupations – 0.4%

Total number of unemployed, unemployment rate, youth unemployment rate

Although unemployment has also fallen in Szabolcs-Szatmár-Bereg County over the past decade – in line with national trends – the region is still one of the most vulnerable counties. According to data from the Central Statistical Office, in 2022, the unemployment rate among the population aged 15-64 was 8.4%, surpassed only by Nógrád County (8.6%). This ratio is significantly higher than the national average (3.6%) and shows an unfavorable picture even in a regional comparison: it was 4.9% in Hajdú-Bihar County and 5% in Jász-Nagykun-Szolnok County at the same time. In addition, the estimate published by the Central Statistics Office after the census indicates a new increase of two percentage points for 2024: according to expectations, the unemployment rate in the county could have reached 10.4%. It is particularly worrying that more than half of registered job seekers – 55.1% according to 2023 data – have been looking for a job for at least 180 days.

The long-term unemployment rate has risen steadily since 2015 (from 41.6%), and the COVID-19

pandemic has exacerbated the problem. Although there was a slight improvement in the period 2022-2023, the proportion of the long-term unemployed remains at critical levels (Hungarian Territorial Information System TEIR, 2023). On the other hand, the proportion of young jobseekers shows a downward trend: while in 2016 (when the trend changed), more than a quarter (25.6%) of jobseekers were under 25 years old, by 2023 it had fallen to 15%. The proportion of jobseekers at the beginning of their careers has also decreased significantly (2016: 17.4%, 2023: 7.6%), which may seem like a positive process at first glance, but in fact allows for several interpretations: it cannot be excluded that many young people have been removed from the register, have been placed in passive status, have emigrated abroad or have been placed in the NEET group, i.e. they are neither studying nor working. At the same time, the proportion of jobseekers over the age of 45 has increased year-on-year: a decade ago (2015) it was 31.2%, but by 2023 it had barely reached 50% (49%) (TEIR, 2023). This is a clear indication that older people are finding it increasingly difficult to return to the labour market, especially due to low qualifications, outdated knowledge or a lack of digital skills.

However, a decrease in unemployment does not necessarily mean entering or returning to the primary labour market. Although official unemployment data also show a downward trend in Szabolcs-Szatmár-Bereg county, it cannot be ignored that this positive change was largely due to the expansion of employment in the public sector. The program, which employed 37,058 people in 2016 (when participation was highest), still had more than 15,000 participants in 2023, including 1,153 people under 26 and 5,693 people over 50. Even more tellingly, a significant number of participants had a low level of education: in 2023, almost 8,500 people had only a primary school certificate, while 1,992 people did not even get one. It should also be pointed out that 172 public workers with tertiary education were also included in the data – all of which clearly indicate that even graduates are not guaranteed a job corresponding to their qualifications (TEIR, 2023).

Key industries facing labour shortages or surpluses

According to an analysis published in the Világgazdaság (Hungarian economic news portal) columns and based on data from the job search portal Jooble, there will be a significant labor shortage in several sectors of Hungary in 2025 as well. The shortage of skilled workers is driven by complex social and economic factors, such as working abroad, generational differences and changing social situations.

The sectoral distribution of the most difficult positions to fill shows a very diverse picture. In the field of industry and production, there is a serious shortage of skilled workers, especially in the large industrial centres (Debrecen, Kecskemét, Győr). The demand for CNC operators, welders, machine operators, and maintenance workers is consistently high, which companies often try to compensate for with additional benefits (accommodation allowance, travel allowance).

Logistics and freight forwarding have also become key deficit sectors with the rise of e-commerce. In addition to packers, forklift drivers, couriers, logistics coordinators, and customer service employees, the demand for logistics coordinators and customer service employees has increased significantly, something that the sector is trying to remedy with higher-than-average salaries and opportunities for rapid advancement.

At national level, the health sector continues to struggle with a severe shortage of professionals, both in urban and rural areas. Despite stable career prospects, the attractiveness of the sector is diminished by initially lower income levels, although increased demand has led to higher wages.

There is a critical shortage of teachers in the education sector, especially in smaller settlements. The biggest challenge is the replacement of teachers, kindergarten teachers and special education

teachers, despite the fact that the advantages of a predictable work schedule and career model are undeniable.

The demand for labour in the IT and digital sectors continues to far outstrip supply. The demand for programmers, system administrators, IT security experts, and web developers is uninterrupted, which is made attractive by flexible work opportunities (home office) and fast training pathways for career changers.

The agricultural sector is particularly affected by the problem of labour shortages. According to a survey by Hamza et al. (2021) conducted by the Institute of Agricultural Economics (AKI), a third of agricultural enterprises face difficulties in recruiting workers, and 40% of farmers. The interviewees are facing a shortage of professionals. Among the jobs that require agricultural qualifications, the largest shortage in the country is that of machine operators, livestock breeders, machine mechanics, and maintenance workers. There is a smaller but pronounced demand for gardeners, agricultural technicians, mechanical technicians and plant doctors, and there are also recruitment difficulties in the arable crop production, forestry and fisheries professions.

In the food industry, there are significant recruitment difficulties, especially in the positions of meat processors and bakers, as well as confectionery producers. These professions can also be considered a deficient profession at national level. Examined by area, the highest number of shortages in the food industry (12 in total) were identified in the counties of Szabolcs-Szatmár-Bereg, Borsod-Abaúj-Zemplén and Csongrád-Csanád.

Programmes or initiatives to support labour market integration (for locals and refugees)

The "Pillar" project is implemented within GINOP Plus (Economic Development and Innovation Operational Programme) and aims to increase participation in the labour market, in particular by involving disadvantaged groups such as NEETs, the long-term unemployed and those with a low level of education. It operates in Szabolcs-Szatmár-Bereg County with a grant of more than 7 billion HUF and intends to reach almost 5 thousand young people under the age of 30 by 2027 through training, mentoring and employment support.

The GINOP-Plusz-3.2.1-21 project entitled "Improving the adaptability and productivity of employees and companies through workforce development" includes training costs, wage subsidies due to lost working hours and costs related to project management and implementation. The program was launched in October 2021 and runs until the end of 2025, and the training of 4427 people in Szabolcs-Szatmár-Bereg County can be implemented from a budget of almost 4.5 billion HUF.

According to a briefing on the situation of the labor market in the county, several specific grants have been implemented from the Employment Fund of the National Fund: within the framework of the "Establishment of housing for workers" program, a suitable facility was built to accommodate a total of 325 people in Nyíregyháza and Nyírmeggyes, while in 2023, 233 people received placement benefits under the "From Public Employment to the Private Sector" program, and another 322 people received support for seasonal agricultural work, totaling more than 45 million HUF. Under the "Promotion of Summer Student Work" program, 4,504 students worked in 208 settlements, employing 98.5% of the available budget of 534.8 million HUF (Szabolcs-Szatmár-Bereg County Government Office, 2023).

Other available data on the labour force and labour market

In Szabolcs-Szatmár-Bereg County, the average net earnings of full-time employees in 2024 were only 315,000 HUF, which is significantly lower than the national (430,123 HUF) and regional (348,047 HUF) averages, while the annual growth rate of 16.4% exceeded the 13.2% growth rate measured in the national average.

5. MAIN CHALLENGES OF THE LABOUR MARKET

Long-term effects of public sector employment

The labour market in Szabolcs-Szatmár-Bereg county has seen a favourable increase in activity over the last decade, but also deeper structural problems: the increase in employment has not been accompanied by a reduction in inequalities in the labour market, and one of the main reasons for this is probably to be found in the expansion of employment in the public sector. This form of employment is not only a tool to replace the incomes of those excluded from the labor market, but also a reflection of the structural problems of the region. As Lipták (2020), Csoba and Sipos (2020) point out, the aim of the programme is no longer primarily to reintegrate into the labour market, but to ease the burden on the social assistance system and reduce social exclusion. These objectives are justified in themselves, but if public sector employment becomes a permanent alternative to the private sector, this may delay the region's economic dynamism in the long term. One of the roots of the problem is that employment is not always linked to the creation of real economic value: job creation is not enough if it is not supported by production or service capacity linked to sustainable and valuable economic activity. Therefore, labour market interventions must aim not only at increasing employment, but also at boosting the region's economic performance with interconnected developments that respond to social disadvantages and economic potential at the same time (Lipták, 2020).

The county data presents the following picture: the lack of qualified labor, the increasing exclusion of the older age group from the market and the lack of practical experience are significant problems and all these are dimensions that reproduce the number of people working in public jobs instead of entering the primary labor market. In addition, or as a result of, it is a challenge that the supply of the labour market, i.e. the level of work, cannot adapt to the new expectations of the economy, neither in terms of the level of competence, nor in terms of mobility, nor in terms of wage demand. Economic transformation, automation and the influx of external labour have not only rearranged the structure of in-demand professions, but have also widened the gaps between social groups: new opportunities are opening up for resilient workers with digital skills and qualifications, while previously disadvantaged groups (e.g. low-skilled people, the elderly, Roma, people living in small rural settlements) are increasingly moving away from the labour market primary work, or even from the world of work in general.

Problems of spatial and economic structure

The circumstances that make it difficult to work are not only the consequences of individual competences (which in many cases are also linked to territorial disadvantages), but also of a more specific regional structure. Inadequate transport infrastructure, inadequate commuting opportunities, in short, mobility difficulties further reduce the chances of entering the labour market. Employment opportunities are highly concentrated in Szabolcs-Szatmár-Bereg County: the economic center of the county is the Nyíregyháza district, where half of the companies filing corporate income tax returns operate and where more than half of the net sales revenue is generated. Almost 50% of employees also work in this region. Mátészalka, Nyírbátor and Kisvárda are also significant economic units, in these districts thousands of people are employed by the largest companies, mainly in the manufacturing industry. On the other hand, the eastern and southern districts, such as Csenger or Ibrányi, have a small number of businesses and a low economic share. Due to the lack of formal employment opportunities, the role of informal jobs in these areas is increasing, which is socially and economically risky.

The 100 companies in the county with the highest turnover employ more than a third of employees and generate 60% of total revenue, mainly in the districts of Nyíregyháza and Mátészalka (NAV Szabolcs-Szatmár-Bereg County Tax and Customs Directorate et al., 2023). Regional differences are not only reflected in the number of enterprises, but also in labour market opportunities and income opportunities: districts with large enterprises are able to offer more stable services, more structured employment opportunities, while in peripheral areas, where these employment actors are usually lacking, the labour market is more vulnerable and the informal employment rate may be higher.

Ageing society, outmigration

The demographic processes of the county have shown and continue to show an unfavorable trend in recent decades: the signs of aging are clearly visible, the proportion of people under 15 years of age decreased from 17.3% to 16.2% between 2011 and 2022, while the proportion of people over 65 years of age increased from 13.8% to 17.8% (based on 2011 and 2022 data from the Central Office of Statistics, based on their own calculations). Natural decline is practically a constant phenomenon, since 2010 the indicator of natural growth has been negative every year, which has reached (4.2 per thousand) (TEIR, 2023), but this increase would have been mainly due to the COVID-19 pandemic. However, even without this 'distortion' effect, demographic trends are negative: continued ageing puts pressure on the labour market, as fewer and fewer young people replace them and older generations (often those with lower qualifications and no digital skills) are more difficult to mobilise, if there is a demand for their work, and all this as a result of the influx of foreign labor, which we will discuss in more detail later, This becomes even more malleable.

The situation is also aggravated by the persistent negative internal migration balance: the county already had an indicator of -7.7 per thousand in 2010, by 2018 it increased to -10 per thousand, and by 2023 it had improved slightly to -6.9 per thousand. Most of the emigrants come from the working age group and those with higher education: based on the 2022 census data of the Central Statistical Office, Pénzcentrum (Hungarian economic news portal) conducted a survey, according to which the largest number of people with a degree leave the country since the change of regime until now, but as for the last year, those with a high school diploma are those who have left the country. Currently, the age group between 20 and 39 years old represents more than half (59%) of those who go abroad – nationally (Szopkó, January 17, 2024). This process, in addition to reducing the level of employment, also exacerbates the labour shortage, especially among skilled workers with technical knowledge. This is also supported by the information and experiences collected from entrepreneurs during our primary

research.

Foreign (third-country) workers in Hungary

Recently, the import and immigration of foreign labor to alleviate the labor shortage in Hungary has become increasingly important: the number of people arriving from outside the EU has increased by 92% nationwide in the last 5 years: while in 2019 it was around 41 thousand, by 2024 this number had reached 78,026 (Bodor, based on data from the Central Statistical Office, 2024). Referring to the Central Bureau of Statistics and the OIF, Bodor writes that in the third quarter of 2024 there were 624 Filipino workers in Szabolcs-Szatmár-Bereg county. Several factors have played a role in the phenomenon, such as the general shortage of regional labor, the emigration of skilled workers, but also the profit-maximizing efforts of industrial actors. At the same time, the author points out that employing foreign workers in Hungary raises a number of challenges and can be had a negative impact both on the balance of the local labour market and on the promotion of social cohesion. According to Bodor (2024), employers are often unwilling to invest in the training of local, disadvantaged workers, preferring simply to replace them with foreign workers, often employed in outsourced jobs (e.g. temporary work, subcontracting). And these employment patterns represent an even greater "danger" in the case of peripheral regions with weak demographic indicators, such as Szabolcs-Szatmár-Bereg County, because hiring guest workers here is not only a temporary replacement for the workforce, but in the long run can lead to the marginalization of the local workforce, not to mention the fact that it is usually not about skilled workers. These measures are appropriate for reducing the labour shortage, but also for filling skilled worker positions: over the past five years, the increase has been particularly significant in unskilled jobs (FEOR 9) and machine and assembly operator (FEOR 8) (Bodor, 2024).

However, the employment of workers from third countries can cause tensions not only on the beneficiary side. A previous study conducted in the early period of the increased influx of labor warns of the vulnerability of guest workers: as a result of temporary work, their social security relationships are unclear and they are more likely to be victims of abuses in labor law (Kártyas, 2021). According to the example of Bodor (2024), due to language barriers, they are more likely to have an accident at work if the message of education for work and accident prevention is not fully conveyed.

An important aspect of the problem is the mistrust that is already present in Hungary: the arrival of guest workers leads to a further erosion of social trust, as a result of the politically supported xenophobic rhetoric that has been going on since 2015, a significant part of the population is already sceptical of workers from third countries, which increases social tensions (Bodor, 2024; Tóth, 2 May 2025). On the one hand, the attempt to segregate those who arrive in Hungary, "taking" the possibility of acceptance by the population, is a problem, and on the other hand, the increase in wage competition can also give rise to new social conflicts: local workers, especially those with a low level of education and those living in poorer regions, are finding it increasingly difficult to keep up with foreign labor with lower wage requirements and a higher workload (Bodor, 2024).

The Presence and Significance of Remote Work

Undoubtedly, perhaps the most important impact of the coronavirus epidemic on the labor market is the spread of teleworking/home office, but its availability is linked to various factors. These include

the level of education, the size of the settlement, the nature of the work and the sectoral classification. According to the calculations of Czaller, Elekes and Lengyel (2020), the population with higher education in the capital is in the most favorable position: in 2018, 44.6% of employees worked from home in Budapest, 25.1% in county relations, 19.4% in smaller towns and 29.4% in villages. The distribution by education level shows even greater differences, with only 3% of employees with no more than eight grades working remotely and 56% of employees with tertiary education. In terms of sectoral differences, manufacturing, construction, transport, accommodation and catering are sectors with significant jobs but few opportunities for remote work, while the number of people working from home is higher in the fields of information technology, finance, legal and accounting services (Czaller et al., 2020). As mentioned earlier, in almost every district of Szabolcs-Szatmár-Bereg County occupational groups not requiring formal qualifications dominate, which may suggest that this type of employment currently has relatively limited importance in the region.

Digitalization and automation trends

The small and medium-sized enterprises we reach usually operate in an area of activity where digitalization is not directly reflected in daily operations, and its role remains marginal. Modern technologies, such as automation or artificial intelligence, are mostly unknown or at least rarely used tools in companies. This is especially true for micro-enterprises where human resources, administrative capacity and technical knowledge are limited, so there is no real need for digital developments. As a result, although digitalisation is playing an increasingly important role at national level, this trend is becoming less common among companies in the target region. However, in the long term, this may further widen the technological gap between regional and competitive market players.

In the case of the circle of entrepreneurs we reached in this regard, the effects on the labor market related to digitalization are primarily relevant in the field of agricultural automation, as several of the respondents are active in this sector. Due to its favourable ecological conditions and the traditional dominant role of agriculture, Szabolcs-Szatmár-Bereg County is considered an outstanding agricultural region even on a national scale, but it is questionable to what extent the digital transition has been implemented in this area.

Digital technologies used in agriculture primarily serve to increase process efficiency, while reducing the need for human working hours and prioritizing jobs that require specialized knowledge. On the one hand, this double effect can reduce the demand for labour in simple and skilled jobs, for example, reduce employment opportunities for seasonal workers and day laborers (which is common among the poorer, low-skilled and fundamentally disadvantaged population) and also further strengthen the existing shortage of skilled workers, as there will be a growing need for more skilled workers who have experience in data-driven decision-making. They are capable of operating digital devices and software or maintaining precision machines. (Szóke and Kovács, 2021).

However, the prevalence of agriculture 4.0 is highly segmented: while larger, capital-intensive farms are able to integrate modern technologies, the innovation threshold is still a significant obstacle for smaller family businesses or micro-enterprises. Investments in the purchase of equipment, low digital skills and the dominance of the older and less skilled workforce are preventing the spread of automation. In home farming, almost 40% of farms do not use digital technology at all (Szóke & Kovács, 2021).

Difficulties in assessing the effects of the Russian-Ukrainian conflict on the labor market

The empirical analysis of the effects of the Russian-Ukrainian conflict that escalated in 2022 on the labor market faces significant methodological challenges. While in the initial phase of the war data on the number of Ukrainian citizens arriving in Hungary and their situation on the labour market were available, the availability and details of the data for the subsequent period have decreased significantly. The lack of publicly available statistics makes it difficult to analyse objectivity, in particular with regard to the temporary or permanent presence of refugees in Hungary. Based on expert estimates, it can be assumed that a significant part of the initial flow of refugees affected Hungary in transit and continued its journey to Western European countries. Therefore, the actual impact on the Hungarian labour market is likely to be more moderate than initially anticipated, but it is not possible to justify this with accurate and up-to-date data in the current information environment.

Labour shortage and labour surplus

Data for Szabolcs-Szatmár-Bereg County show that the number and rate of job vacancies fluctuated significantly between 2015 and 2024. While in 2015 there were 1,392 vacancies at a rate of 1.3%, this number almost doubled by 2018 (2,457 positions, rate of 2.0%), followed by a gradual decrease in the following years: 1,931 in 2020, 1,888 in 2022 and only 1,534 in 2024, again at a rate of 1.3%. At the national level, the opposite trend can be observed: the number of vacancies increased from 44,552 in 2015 to 69,284 by 2024, while the rate rose from 1.5% to 2.1% (KSH, 2024). According to the Profession.hu survey, in the last quarter of 2024, the number of applications submitted for their job advertisements decreased by 12% in the county compared to the same period of the previous year, and this is the second highest of all counties in the country, only Békés county was more (16.6%).

Hungary's labor shortage is also well-defined by sector. According to the 2025 survey by the job portal Joble, industry and production, logistics and transport, healthcare, education and the IT sector are the areas where demand significantly exceeds supply. As a result of the continuous expansion of the digital sphere, programmers, system administrators, IT security specialists and web developers, for example, are in high demand, and the sector has become more open to people living in rural areas due to the possibility of home office. In industry, there is a high demand for technical jobs (CNC operators, welders, machine operators), while in the logistics sector, due to the growth of e-commerce, there is a growing demand for packers, couriers, and warehouse workers (Világgazdaság, 2025). In addition, in the health and education sectors, the replacement of professionals is becoming increasingly urgent not only in large cities, but also in smaller localities: in Szabolcs-Szatmár-Bereg County, for example, the National General Directorate of Hospitals reports 26 vacant general practitioner practices (Füredi, 2025), and a foundation we reached for health support also spoke of a serious shortage of manpower. The Hungarian experience is therefore in line with the findings of the European Commission's 2023 report, according to which labour shortages are no longer just a temporary problem, but permanent and structural in many sectors. Construction, healthcare and STEM (science, technology, engineering, mathematics) are particularly affected, where both working conditions and a lack of specific skills make recruitment difficult.

Digitalisation and the green transition are creating new skills and reskilling needs, which can only further widen the gap between supply and demand in the long term (European Commission, 2023; Németh, September 15, 2023). At the same time, it is important to note that we operate with national (and on a larger scale, European) data, which do not necessarily coincide with county trends, but can provide a basis for comparison.

There is a significant labour shortage in the agricultural sector: according to a survey by AKI, a third of businesses are experiencing recruitment difficulties and 40% of them are experiencing a shortage of professionals. There is a critical shortage of machine operators, livestock breeders, and machine mechanics, while there is an increased demand for gardeners, agricultural technicians, and plant mechanics and doctors. In the food industry, there is a national deficit mainly in the meat processing, bakery and confectionery professions, which mainly affects the counties of Szabolcs-Szatmár-Bereg, Borsod-Abaúj-Zemplén and Csongrád-Csanád, where a total of 12 deficient professions have been identified.

Currently, there are 11 job ads available (from the last three weeks) on the job search portal with a local target area Laboro.hu (Laboro.ro) included in the project objectives, but they are all job opportunities in Satu Mare, Romania.

6. ADULT EDUCATION AND LIFELONG LEARNING IN A CHANGING LABOUR MARKET

Institutional frameworks and policies

The Hungarian system of adult education and vocational training is regulated by Act LXXVII of 2013 on Adult Education and Act LXXX of 2019 on Vocational Education and Training.

Act LXXVII of 2013 on Adult Education¹

In order for members of society to be able to face the challenges of economic, cultural and technological development and to be able to successfully enter the world of work, it is essential to develop training systems. It is important for people to be successful in their lives and improve their quality of life through adult learning and training. To this end, the organisation of vocational, linguistic and subsidised training must be increased, and the quality of its content and the monitoring of its implementation must be strengthened. To achieve these goals, the National Assembly passed Law LXXVII of 2013 on Adult Education. The aim of the law is to promote adult learning and training, thus helping them to adapt more easily to economic, technological and social changes and to be more successful in the labour market and in other areas of their lives.

The main points of the law in brief:

- Scope: The law applies to all organised education and training which does not fall within the scope of public school education, vocational training or higher education and that are provided by legal entities, sole entrepreneurs or other economic actors.
- Adult education activity: This includes any type of training aimed at developing competencies, whether provided on a commercial basis, free of charge, or as internal training.
- Obligations: Training providers are required to fulfil notification and data reporting obligations and must keep records of participants.
- Exceptions: The law does not apply to training for religious, judicial, occupational safety or reintegration purposes, for example, if they are provided on the basis of other legislation.
- Therefore, the purpose of the law is to improve the quality and transparency of adult education and to expand adult learning opportunities.

Education and Training Act LXXX of 2019²

Through this law, the National Assembly intends to promote the application of the rights to culture and labour enshrined in the Fundamental Law and to serve the development of a modern system of professional training adapted to the needs of the economy.

The purpose of the law is to establish a vocational training system that:

- promotes conscious career and qualification choices;
- ensure a high quality of vocational education and training, in line with the requirements of 21st century;

¹ [Felnőttképzési tv. \(új\) - 2013. évi LXXVII. törvény a felnőttképzésről - Hatályos Jogszabályok Gyűjteménye](#)

² [Szakképzési tv. \(új\) - 2019. évi LXXX. törvény a szakképzésről - Hatályos Jogszabályok Gyűjteménye](#)

- supports knowledge-based practical learning, the development of digital skills and creative and open thinking;
- develops the ability to adapt flexibly to change;
- strengthen cooperation between vocational education and training and the economic sphere;
- and promotes the acquisition of a professional qualification or qualification that gives learners a real market chance and a secure life.

The task of vocational education and training is to prepare individuals to acquire modern professional knowledge, to develop the skills necessary for lifelong learning, and to strengthen the competitiveness of the economy through the training of the professionals it requires. Vocational education and higher education are interconnected and integral parts of the education system. Its aim is to adapt the Hungarian vocational education and training system to the requirements of the 21st century and to create a training structure that responds to the needs of the economy while ensuring competitive knowledge and secure livelihoods.

The main points of the law in brief:

Objectives:

- Promoting conscious career and qualification choices.
- Establishing a high-quality, practice-oriented training system based on digital knowledge.
- Strengthening cooperation between the economic sector and vocational education and training.
- Developing students' creativity and adaptability.
- Vocational education and training institutions: Vocational education is provided in two main types of institutions: technikum (technical schools) and vocational schools.
- Training may take place either within the formal school system or within the framework of adult education.

Students may also complete practical training in companies, at so-called dual training sites, which facilitates direct adaptation to labour market needs. The state provides the acquisition of two professions free of charge, and obtaining the first vocational qualification is also free of charge, including the related examinations.

Comparison of the Adult Education Act and the Vocational Education Act, based on purpose and objective:

Criteria	Adult Education Act (2013)	Vocational Education Act (2019)
Purpose	Expanding learning opportunities for adults and developing competences	Developing a modern, practice-oriented vocational training system
Focus	Non-formal training programmes and competence development	Formal vocational and technical education, vocational schools and dual training

1. Table: Comparison of the adult education act and the vocational education Act, based on purpose and objective

Comparison of the adult education and vocational education systems based on institutional background:

Criteria	Adult Education	Vocational Education
Institutions	Training institutions, companies and nonprofit organizations	Technical and vocational schools, dual training providers
Legal relationship	Adult training legal relationship	Learner or adult trainee legal relationship

2. Table: Comparison of the adult education and vocational education systems based on institutional background

Comparison of the adult education and vocational education systems based on regulations:

Criteria	Adult Education	Vocational Education
Mandatory reporting	Mandatory reporting of training activities to the FAR system	Institutional authorization and state supervision
Data provision	Detailed records of participants	Learner registers and documentation of examinations

3. Table: Comparison of the adult education and vocational education systems based on regulations

Comparison of the adult education and vocational education systems based on support and free access:

Criteria	Adult Education	Vocational Education
Free of charge	Usually fee-based, but may be supported through financial aid	Obtaining two professions and one professional qualification is free of charge
Forms of support	Support from the State, the EU or employers	State funding, scholarships, and support for dual training

4. Table: Comparison of the adult education and vocational education systems based on support and free access

Comparison of adult education and vocational education systems based on flexibility and target groups:

Criteria	Adult Education	Vocational Education
Target groups	Any person over the age of 16 who wishes to learn	Primarily young people, but adults may also participate
Flexibility	High flexibility, short-term courses	More structured and longer training pathways

5. Table: Comparison of adult education and vocational education systems based on flexibility and target groups

Connection of the adult education and vocational education systems to the economy

Criteria	Adult Education	Vocational Education
Labour market relations	General competence development; specific training	Close cooperation with economic actors, dual training

6. Table: Connection of the adult education and vocational education systems to the economy

The law on vocational education and training is stronger in terms of the institutional context and economic relations.

The Adult Education Act allows for greater flexibility and targets a wider target group.

Mapping the main providers of adult education

The most important adult education providers in Hungary in 2025 consist of the following main actors:

National system of state and central institutions:

NSZFH – National Office of Vocational Education and Adult Education: Coordinates the vocational education and adult education system. It maintains registers of training providers and examination centres and monitors compliance with legal regulations.

Vocational Training Centres: Numerous technical schools and vocational schools operate across the country. An increasing number of centres also offer retraining and further training opportunities for adults.

In Hungary, over the past decades several thousand economic organisations have provided adult education and professional training services. The legal framework has undergone significant transformation: amendments to the adult education and vocational training laws introduced such strict regulatory requirements that only training institutions with strong financial resources and extensive professional networks were able to comply with them. This regulatory change led to significant market consolidation, during which many smaller training organisations were forced out of the market.

Competition in the sector was further intensified by a legislative amendment that allowed higher education institutions and vocational training centres to launch adult education and vocational training programmes, significantly reshaping the previously established balance of market power.

Some of the most significant examples of market-based training institutions are:

- Improvers Group (the corporate group also includes Saemling, N.E.W.S., and the Arbinger Institute)
- Flow Conunsulting Ltd.
- Festo Didactic Ltd. Specialised in industrial and technical training; it is frequently mentioned at professional events
- System Media Ltd.: Has a wide adult education portfolio, particularly in the fields of law, finance and HR.
- Educomm, Perfekt, DEKRA Akademie, IQJB: These companies offer various professional and language training programmes, often also in online formats.

Higher education institutions: An increasing number of universities and colleges offer adult education programmes, for example: ELTE, BBS, University of Pécs

Online and distance education providers (the 2025 regulation already addresses the system of distance learning and micro-credentials separately). More and more training providers offer e-learning packages, for example: Webuni, Hungarian partners of Coursera, Edutus Academy, etc.

Overview in Szabolcs-Szatmár-Bereg County:

Market-based training providers and companies (non-exhaustive list)

- Innovative Education Centre³
Locations: several towns in the county (e.g. Nyíregyháza, Mátészalka)
Training programmes: Cleaning technology skilled worker, Personal and property guard, Ornamental plant grower, Vegetable and fruit producer
Programmes: Courses supported under the GINOP Plusz-3.1.1-23 and Youth Guarantee Plus schemes
- Gyémánt Kakas Adult Education⁴
Location: Kállósemjén
Training programmes: Certified farmer (Aranykalászos gazda), logger, branch cutting and processing worker, dog groomer, Interior designer, Florist, Swedish massage therapist, Special education assistant, Childcare assistant (nanny), Logistician
Online options: also available via Zoom and Google Meet platforms
- Mátrix Vocational Grammar School and Secondary Vocational School
Location: Nyíregyháza, 11 Széchenyi Street
Profile: public education and adult training institution
Training programmes: language courses, vocational qualifications, preparation for the secondary school leaving examination
- LENSIT Bt.
Location: Nyíregyháza, 3 Búza Square
Training programmes: machinery operator training, language courses and vocational training
- Nyírség Professional Further Training Ltd.
Location: Nyíregyháza, 8 Országzászló Square
Training programmes: technical and vocational training, adult education
- Nyírvidék TISZK Nonprofit Ltd.
Location: Nyíregyháza, 53 Árok Street
Training programmes: 19 training workshops, OKJ and other vocational programmes
- Magyar Vidékért Ltd.
Location: Nyíregyháza, 14 Kemecei Road
Training programmes: agricultural training, professional consultancy, project proposal writing
- Student Stop! Language School
Location: Nyíregyháza, 31/B Sóstói Road
Programmes: language courses, preparation for language examinations
- Horlux Education Centre
Location: Nyíregyháza, 10 Kölcsey Street
Training programmes: ECDL, DExam accredited language examination centre, IT and language training
- Sziltop Public Benefit Company (Kht.)
Location: Vásárosnamény, 12/B Orbán Balázs Boulevard
Training programmes: preparation for the secondary school leaving examination, adult education programmes

Vocational training centres

There are 3 large vocational training centers in the county, with 28 member institutions throughout the county:

- Nyíregyháza Vocational Training Centre
- Mátészalka Vocational Training Centre
- Kisvárda Vocational Training Centre

³ <https://ujratanulok.hu/kepzesek/szabolcs-szatmar-bereg-varmegyei-tamogathato-tanfolyamok/>

⁴ <https://www.gyemantkakas.hu/>

(A detailed list can be found in the stakeholders database)

Higher education institutions:

- University of Nyíregyháza; Regional Office for Training, Continuing Education and Adult Education Office⁵

The adult education activities of the University of Nyíregyháza are coordinated by the Regional Training, Continuing Education and Adult Education Office, which operates as an organisational unit of the Technology and Knowledge Transfer Centre. This unit of the university organises teacher continuing professional development and adult education programmes, as well as market-oriented, professional, soft-skill and foreign language competence development courses. In addition, it contributes to the operation of the university's adult education activities by identifying and utilising funding opportunities from grant programmes.

- University of Debrecen⁶

The Nyíregyháza Faculty of the University of Debrecen offers a number of adult education and vocational training programs that cover different professional fields. Among others:

Health and Social Care Training Programmes

- Physiotherapy group-based professional training programmes – for physiotherapists and healthcare professionals.
- Health management training programmes – focused on the management and organisation of healthcare institutions.
- Clinical psychologist specialist training – specialised further training available for psychologists.

Agriculture and Environmental Management Training Programmes

- Precision agriculture – application of drones in modern farming.
- Plant protection drone pilot training – learning the new technologies used in plant protection.
- Organic farming and sustainable crop production – alternative and ecological farming methods.

Teacher Continuing Professional Development

- Continuing training for music teachers – for teachers working in music education.
- Public education training programmes – for teachers and education professionals.

Alignment with labour market needs

In the continuously changing labour market environment, lifelong learning is no longer merely an opportunity but a necessity. The primary aim of the Hungarian adult education system is to respond flexibly to current labour market needs, ensure the competitiveness of workers, and support the human resource needs of economic actors.

⁵ <https://felnottkepzes.nye.hu/>

⁶ <https://unideb.hu/felnottkepzes>

The adult education system is based on three main objectives: directly responding to labour market needs, strengthening the position of workers through retraining programmes, and establishing an organic connection with the vocational training system. In order to create a balance between supply and demand, the training system operates several strategic adaptation mechanisms:

- Continuous development of the training offer, with particular attention to occupations in shortage
- Providing practice-oriented, shorter courses, often available online
- Introducing new financing schemes, such as the Individual Learning Account (ETSZ) pilot programme launching in 2025, which specifically supports training in shortage occupations and the integration of low-educated and inactive individuals
- Expanding the system of micro-credentials and partial qualifications, which allow rapid and targeted competence development, particularly in technological and digital fields

In the future labour market, basic digital skills, professions related to the green economy, customer service and communication competencies, and entrepreneurial knowledge are expected to gain particular importance, and these are also specifically supported by the ETSZ system.

Examining the sectoral distribution, it can be seen that the high demand for labour in the social and healthcare sector, commerce, and technical fields is addressed by targeted programmes within the adult education system. There is growing demand for digital skills, which training programmes with micro-credentials and supported courses aim to meet, while in agriculture there is stable demand for programmes such as the Golden Ear Farmer qualification (Aranykalászos gazda) and similar trainings.

Summary of the findings in table form:

Area	Labour Market Demand	Adult Education Supply
Social and healthcare	High	Targeted training programmes are implemented
Commerce	High	Available courses
Digital skills	Growing	Micro-credentials, ETSZ
Agriculture	Stable	Golden Ear Farmer (Aranykalászos gazda) training programmes
Entrepreneurial skills	Emerging	Programmes launched with ETSZ (Individual Learning Account) support
Technical professions	High, continuous shortage	Electrician and machine operator training programmes

1. Table: Labour Market Needs and Response to Adult Learning by Domains

Participation and barriers to access to adult education

Adult education in numbers⁷:

In 2023, 9.6% of the population aged 25–64 participated in formal and non-formal training. This figure was 7.9% the year before last, and 5.9% before that. The target is to reach 15% by 2030. Currently, 15,538 adult education providers are registered or licensed in Hungary.

Between 1 October 2020 and 1 October 2024, 2,392,472 people participated in a total of 6,623,240 training programmes. Of the participants, 52.4% were men and 47.6% were women.

226,183 people participated in preparatory vocational training for professional qualifications, 51,273 people took part in professional training preparing for a partial qualification, 2,313,602 people participated in training conducted under legal regulations and 4,032,182 people attended other types of training.

In Hungary, a total of 880,918 training programmes were launched between 2020 and 2024. Among these, 13,427 prepared participants for a vocational qualification, 2,764 for a partial qualification, 414,194 were training programmes conducted under legal regulations, and 450,533 were other types of training. County-level statistics are not available.

The Individual Learning Account (ETSZ) is a new programme in Hungary currently being introduced in 2025, aimed at encouraging adult participation in training, particularly in occupations experiencing labour shortages. The ETSZ functions as a kind of “learning wallet” or “learning card”, into which the state (and later potentially employers) can transfer funds that beneficiaries can use exclusively for training purposes.

The objectives of the programme are:

- motivating adults to participate in learning and retraining
- Reducing skills shortages in the labour market
- making the training system more transparent
- supporting flexible forms of learning, such as micro-credentials

It is primarily available to people with low levels of education and inactive individuals, especially those who lack digital skills. The target groups may expand as the programme is implemented nationwide. The system can also be linked to micro-credentials, making it possible to finance short, targeted training programmes.

The ETSZ complements the GINOP Plus programme and other EU-funded programmes. It is part of the European Year of Skills initiative supported by the European Union.⁸

⁷ [Soha nem késő váltani – a felnőttképzés számokban | Szakmaverzum.hu](#)

⁸ [PowerPoint presentation](#)

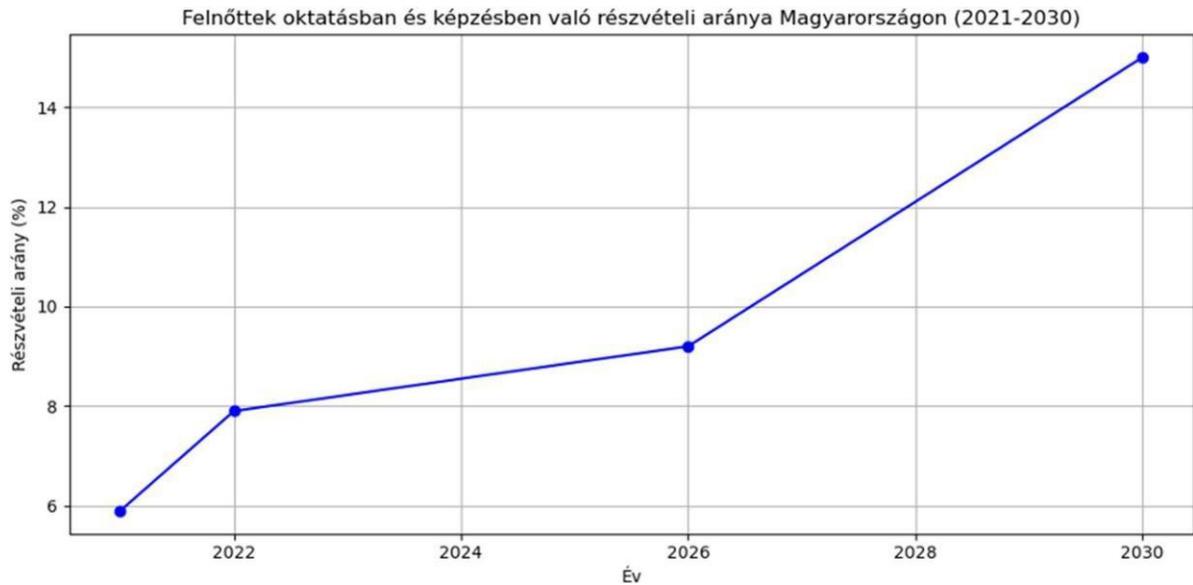


Figure 2: Adult participation rate in education and training in Hungary (2021-2030) – participation rate/year
 Source: Own compilation based on data from the Ministry of Culture and Innovation

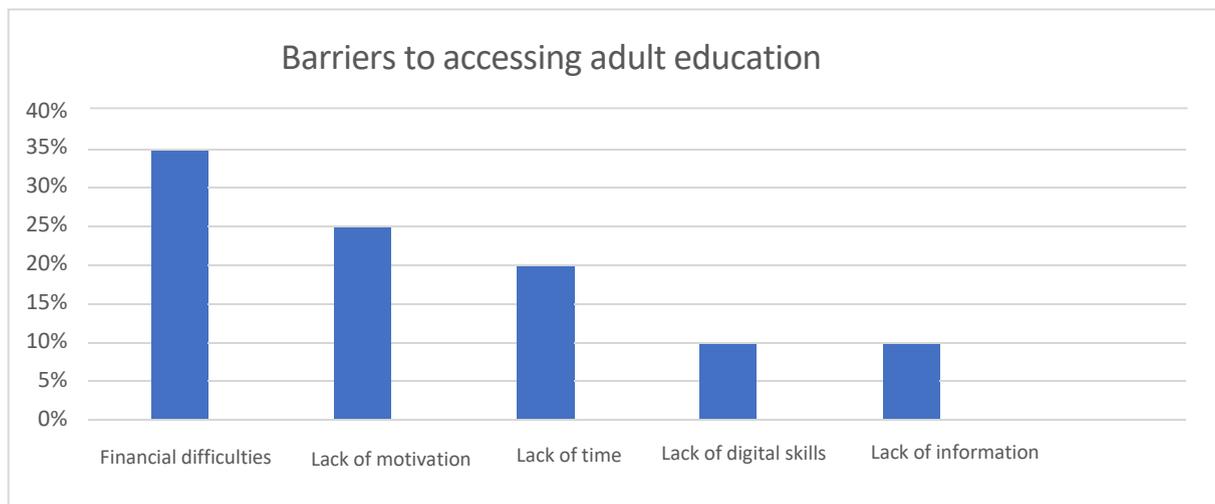


Figure 3: Barriers to accessing adult education
 Source: Own compilation based on data from the Ministry of Culture and Innovation,

Evolution of the participation rate in training (2021-2030)

- In 2021: 5.9%
- In 2022: 7.9%
- Forecast for 2026: 9.2%
- Target for 2030: 15%

This growth can be achieved through the ETSZ programme, micro-credentials, and GINOP Plus support.

Based on the above, the main barriers to participation in training programmes are:

- Financial difficulties (35%) – the most significant deterrent
- Lack of motivation (25%) – particularly among people with low levels of education
- Lack of time (20%) – mainly among working adults
- Lack of digital skills (10%) – a barrier to online learning
- Lack of information (10%) – people are not aware of the available opportunities

7. LABOUR MARKET CHANGES DUE TO THE WAR IN UKRAINE

Estimated number of Ukrainian refugees/migrants

Based on 2017 statistics, migrants arriving in Szabolcs-Szatmár-Bereg County mainly came from the neighbouring Satu Mare County in Romania, as well as from the Transcarpathian regions of Ukraine, primarily from the Berehove, Uzhhorod and Vynohradiv districts. This migration direction is typically based not only on geographical proximity, but also on cultural, linguistic and historical ties: most of the destination areas have Hungarian minority communities, which noticeably facilitates relocation and labour market integration (Kincses, 2023).

However, it is important to emphasise that these data reflect the period before the outbreak of the war in Ukraine in 2022, and therefore are only partially suitable for describing the current migration situation. According to the most recent 2022 census data of the Hungarian Central Statistical Office (KSH), the number of people of Ukrainian nationality at the national level has increased significantly, nearly fourfold since the previous census.

Although the geographical location of Szabolcs-Szatmár-Bereg County might suggest a higher proportion of Ukrainian residents, and according to the regional map of the KSH, in most districts of the county (11 out of 13 districts) foreigners born in Ukraine represent the largest migrant group⁹, their absolute number is still not outstanding. Referring to KSH and OIF data, Bodor reports 152 Ukrainian workers in the third quarter of 2024. The second largest share lives in the Nyíregyháza district (3.6%), which is only slightly higher than the proportion in the Győr district (2.7%).

The largest Ukrainian community is located in Budapest (35%) (KSH, 2023). According to a 2023 report by the Ministry for National Economy, no work permits were issued to Ukrainian citizens in Szabolcs-Szatmár-Bereg County in either 2022 or 2023. In contrast, a 2023 labour market report prepared for the General Assembly of Szabolcs-Szatmár-Bereg County states that four employers received financial support related to the employment of Ukrainian or Ukrainian-Hungarian dual citizens, amounting to more than 2.3 million HUF in total.

Since the relevant reports do not distinguish between Ukrainian citizens and workers with dual citizenship, the exact proportion is unknown. Based on this, it can be assumed that the actual number of Ukrainian workers is higher than what is reflected in the official work permit data. However, the extent of undeclared employment cannot be measured, and therefore there are currently no precise data on how many Ukrainian citizens are actually working in the county.

9. Bodor (2024), referring to the above-mentioned organizations, claims that 624 Filipino citizens work in the county

Number of People Applying for Asylum Status in Hungary (2022–2025)¹⁰

- Approximately 41,000 people applied for and mostly received temporary protection status in Hungary
- In addition, around 24,000 people live in Hungary with other types of residence permits (e.g. work visas), but are also staying in the country as refugees.
- This means that since the start of the war, approximately 65,000 Ukrainian refugees have remained in Hungary for the longer term, most of whom have received temporary protection status.

According to a 2023 study, the future plans and intentions of those arriving in Hungary vary:

- Intention to stay in Hungary: transit (32%), already established (24%), planning to establish (19 %),
- Staying in Ukraine (15%), staying in another country (8%);
- Application for temporary protection: yes (59%), no (40%). The majority of people who have already settled have applied for temporary protection status (84%) or have a work visa (11%);
- Main needs in Hungary: financial support (51%), travel assistance (49%), information (40%), long-term accommodation (35%), food (35%), healthcare services (24%);

The most important areas of help received:

- travel assistance (80%),
- food (55%),
- accommodation (47%);

Impact on the local labour market

The impact of Ukrainian refugees on the local labour market in Szabolcs-Szatmár-Bereg county:

Key impacts:

- Increasing labour availability: refugees have partly alleviated labour shortages, particularly in sectors requiring lower levels of qualification.
- New workforce needs: demand has emerged for language support, integration services, and social and educational support activities.
- Challenges: the main barriers are language limitations, lack of qualifications, and administrative difficulties.

Policy responses of the Government and Local Authorities

The Hungarian government and local authorities have responded to the arrival of Ukrainian refugees on several levels, especially in Szabolcs-Szatmár-Bereg county, which is the main entry point from Ukraine. The most important policy responses:

- Introduction of temporary protection status based on a government decree issued on February 24, Ukrainian citizens are automatically entitled to temporary protection
 - o This status also entitles to employment, healthcare, and education.
- National Council for Humanitarian Coordination (NHKT)
 - o Its aim is to coordinate civil, church, and state actors in the provision of assistance to refugees.
- Development of the registration system
 - o The police introduced a new computer system at the border, which allowed for fast and accurate data collection

¹⁰ The studies contain only estimated

- Involvement of EU funds

€300 million has been made available from the REACT-EU fund, which can also be used to support refugees.

Local responses in Szabolcs-Szatmár-Bereg county:

- Záhony transit point
- The main entry point from Ukraine
- The largest civil and church-based aid organisations operate here (e.g. Hungarian Maltese Charity Service, Catholic Caritas)
- Nyíregyháza and its surrounding area
- Social services, language courses, and schooling for children
- Local municipalities and civil organisations cooperate in the integration of refugees
- Labour market support
- Local employment centres provide job placement services, training programmes and counselling
- Vocational training centres are also open to refugees

An important part of the work of the Szabolcs-Szatmár-Bereg County organisation of the Hungarian Red Cross over the past three years has been supporting the integration of Ukrainian refugees. The organisation maintains close contact with approximately 250 refugees and supports them through various programmes, such as Hungarian language classes, community events, and health screening examinations. The aim is to help refugees successfully integrate into Hungarian society, find employment, and start an independent life. The Hungarian Red Cross also pays special attention to supporting the mental health of Ukrainian refugees. Within the framework of the EU4Health project, they provide psychosocial support, which includes:

- Recruitment of mental health professionals who help provide psychological support to refugees.
- Community events aimed at reducing stress and promoting social integration.
- Psychological workshops, during which refugees can learn how to manage conflicts and depression.
- The organisation pays special attention to ensuring that refugees do not feel stigmatized, therefore psychological support is not provided in a direct therapeutic form, but rather through community interactions, such as friendly conversations and shared activities.¹¹

Integration challenges of Ukrainian workers

Refugees arriving from Ukraine most frequently face language difficulties as the main integration challenge. This is followed by financial difficulties (33%), lack of information (21%), and lack of work-related information (17%). Additional challenges include housing problems (15%), documentation issues (14%), lack of available jobs (14%), and limited access to services (12%). Although the majority did not experience discrimination, 6% of respondents (mainly men, 7% among them) reported that they had experienced some form of discrimination (IOM, 2023).

¹¹ <https://www.szon.hu/helyi-kozelet/2025/03/ukran-menekultek-magyar-voroskereszt-integracio-szabolcs>

8. LABOUR MARKET TRENDS BASED ON THE ANALYSIS OF SECONDARY DATA

Labour Market Transformation

The Hungarian labour market is facing dynamic changes, where productivity, training and innovation will play a key role in the success of companies.

Already by 2025, the Hungarian labour market is undergoing significant transformations influenced by several factors. The main trends include:

- 1. Labour shortage and recruitment challenges**
30% of companies plan to increase their number of employees, while 10% plan to make layoffs. Some of the most in-demand jobs include production (factory) workers, engineers, salespeople, and IT specialists.
The biggest problem in recruitment is unrealistic salary expectations, which are followed by a lack of relevant experience and language skills shortages.
- 2. Changes in salaries and benefits**
96% of companies plan to raise wages in 2025 although the pace of growth is slowing.
Most companies plan to grow between 6% and 10%, while 62% of employees would like a higher increase of more than 15%.
The importance of bonuses, cafeteria systems and health insurance is increasing among non-wage benefits.
- 3. Artificial intelligence and digitalization**
AI is also playing an increasingly important role in HR processes and business strategy. 28% of companies are already actively using AI, while another 31% are open to partial adoption of the technology. AI is mainly spreading in the fields of administration, human resources, marketing, and finance. New jobs are being created and many jobs are being eliminated.
- 4. Foreign labour force and emigration**
According to demographic data, 15,000 fewer young people enter the labour market each year than they retire.
Around 700,000 Hungarians live abroad, sending home 3.5 billion USD annually.
The employment of foreign workers in Hungary often faces administrative barriers, and regulatory uncertainty discourages many non-EU workers.
- 5. Emerging Industries and Sectors**
The highest recruitment intentions are expected in the fields of IT and telecommunications (52%), business services (48%) and commerce (38%). The automotive and transportation industry is preparing for layoffs, while the construction industry is experiencing slight growth.
- 6. Regional differences and territorial inequalities**
There are significant labour market differences between Budapest and rural areas, and disadvantaged regions face persistent labour market challenges.

7. Effects of the green transition on the labour market
 - Emergence of new environment-related jobs
 - Sustainability in corporate operations
 - Employment impacts of the transition toward a circular economy
8. Ageing workforce and generational change
 - The labour market situation of workers approaching retirement age presents new challenges, including the need to manage generational differences in workplaces.
9. Expansion of atypical forms of employment
 - Spread of part-time work, casual work, job sharing and project-based work, etc.
 - Gig economy situation in Hungary (digital casual work)

Remote work is becoming an increasingly widespread form of work in Hungary. The COVID-19 pandemic catalyzed this change, but technological advancements and employee demands made this model permanent.

Remote work trends in Hungary

- Prevalence: 70% of companies use some form of remote work, especially in the technology, financial, and administrative sectors.
- Hybrid work: Most companies expect one to three days of office presence per week, while maintaining the option of working from home.
- Spread of digital tools: Platforms like Zoom, Microsoft Teams, and Slack have become essential for maintaining teamwork.

Remote work is expected to continue to evolve and more and more companies will adopt hybrid work, which combines working from home and in the office. Artificial intelligence and digitalization can create additional opportunities to increase the efficiency of remote work.

Advantages:

- Flexibility and a better work-life balance
- Cost savings for employers (office rental, utilities)
- Wider labour market reach, including rural and international workers

Challenges:

- Risk of overwork, as working from home may blur the boundaries of working time.
- Decline in personal interaction and team cohesion
- More difficult employee monitoring and performance evaluation
- The workplace of the future

Impact on businesses and the labour market

In the digitalization and automation of the global labor market, Hungary faces specific challenges. While labour shortages and wage growth are being faced in the central regions, employment difficulties continue to prevail in peripheral areas. The growth sectors are led by IT and telecommunications (with an expansion of 52%), business services (48%) and retail (38%), while the automotive industry and traditional manufacturing are undergoing restructuring due to electrification and automation.

Skill shortages have become critical in several key areas, particularly in IT, engineering, healthcare and social services. Demographic trends further intensify the pressure: 15,000 fewer young people enter the labour market annually than the number retiring, while approximately 700,000 Hungarians work abroad. Efforts to address labour shortages through foreign labour recruitment are often hindered by administrative barriers.

The COVID-19 pandemic accelerated the spread of remote work, with 70% of companies applying it in some form, and hybrid working models are expected to become dominant. The economic consequences of the Russian-Ukrainian conflict, particularly rising energy prices, have affected certain sectors more strongly and have influenced wage practices. While most companies plan 6–10% wage increases, 62% of employees expect increases above 15%.

Artificial intelligence is becoming increasingly decisive: 28% of companies already use it actively, while 31% are open to partial implementation. AI is spreading mainly in administration, HR, marketing and finance, creating new roles such as AI specialists and data scientists, while automating routine tasks. In the AI-driven labour market, the importance of complex problem-solving, critical thinking and creativity will increase.

In the future, the labour market is expected to become more polarised: jobs requiring high qualifications and personal services will expand, while routine positions will decline. Employee experience, flexible working conditions and personalised development programmes will become key elements of competitiveness. Increasing labour market flexibility will require transformation of the education and adult learning systems, with particular emphasis on the development of digital and transversal skills.

9. CONCLUSION AND FUTURE CONSIDERATIONS

Key Findings of the Analysis

The study provides a detailed analysis of the labour market situation in Szabolcs-Szatmár-Bereg County, taking into account current challenges such as the inflow of foreign labour, automation, digitalisation, the development of artificial intelligence, and the consequences of the war in Ukraine, as well as long-term trends such as an ageing society and the shortage of skilled labour.

The examination of employment indicators shows a positive trend: the county activity rate increased from 64.9% to 76.5% between 2014 and 2024, approaching the national average. The employment rate rose from 43.1% in 2011 to 59.2% by 2022. However, this growth conceals several structural problems.

In the county, the largest share of employment (17.5%) is represented by occupations not requiring formal qualifications (simple occupations), indicating that the regional labour market relies heavily on low-skilled labour. While in 2011 the employment structure was more diversified, by 2022, with the exception of the Nyíregyháza district, the occupational group not requiring formal qualifications became dominant in all districts. This development is partly the result of the expansion of public employment programmes and the spread of factories employing foreign workers.

Although the unemployment rate has decreased over the past decade, the county still remains among the most vulnerable regions in the country, with a rate of 8.4% in 2022, which is significantly higher than the national average of 3.6%. According to KSH estimates, this may have increased to 10.4% by 2024. Particularly concerning is that more than half of jobseekers (55.1%) are long-term unemployed, having been without work for at least 180 days.

The demographic trends in the county are also unfavourable: population ageing is clearly visible. The proportion of those under the age of 15 decreased from 17.3% to 16.2% between 2011 and 2022, while the share of those over 65 increased from 13.8% to 17.8%. The situation is further worsened by a persistently negative internal migration balance, which reflects the outmigration of people with higher levels of education.

The inflow of foreign labour has become increasingly significant: the number of workers arriving from outside the EU increased by 92% nationally over the past five years, reaching 78,026 people by 2024. This phenomenon has intensified due to regional labour shortages, the emigration of skilled workers, and the profit-maximisation strategies of industrial actors. Over the past five years, growth has been particularly significant in occupations not requiring formal qualifications (FEOR 9 – elementary occupations - jobs not requiring formal qualifications) and in machine operator and assembly positions (FEOR 8 – machine operators, assemblers and drivers), indicating that these measures do not necessarily address the shortage of skilled labour.

The employment of guest workers also carries risks: due to the widespread use of temporary agency employment, their social security status may be uncertain, they are more vulnerable to labour law abuses, and language barriers increase the likelihood of workplace accidents. In addition, social tensions may intensify, as local workers—particularly those with lower levels of education—may find it more difficult to compete with foreign workers who often accept lower wages and heavier workloads.

The effects of digitalisation and automation are mixed: among small and medium-sized enterprises, their role remains marginal, and modern technologies are rarely applied. In the long term, this may create a technological gap between regional actors and other market competitors. In agriculture, automation may reduce demand for simple, low-skilled labour, while at the same time increasing the shortage of specialists, as more highly qualified workers familiar with data-driven decision-making and digital tools are required.

The number of vacant positions in Szabolcs-Szatmár-Bereg County has fluctuated in recent years. In 2015, 1,392 vacancies were recorded (1.3%), which nearly doubled by 2018 (2,457 vacancies, 2%), and then declined again to 1,534 by 2024 (1.3%). In contrast, nationally the number of vacancies shows an increasing trend, rising from 44,552 in 2015 to 69,284 in 2024, with the rate increasing from 1.5% to 2.1%.

Proposed Measures to Improve Labour Market Integration and Employment Stability

1. **Development of the training system.** The primary goal of the adult education system is to respond flexibly to current labour market needs, ensure the competitiveness of workers, and support the human resource needs of economic actors. To achieve this, the training offer must be continuously developed, with particular attention to shortage occupations, practice-oriented and shorter training courses should be provided, and new financing mechanisms such as the Individual Learning Account (ETSZ) should be introduced. It is also of key importance to support corporate internal training systems by creating a professional database that makes the profiles of recognised trainers and instructors from different fields accessible. This would allow companies to directly contact suitable experts and develop targeted, practice-oriented training programmes, enabling the more effective development of competencies that can be directly applied in the workplace.

2. **Reducing regional inequalities.** Barriers to employment include mobility difficulties, inadequate transport infrastructure, and limited commuting opportunities. Employment opportunities are strongly concentrated in the Nyíregyháza district, where half of the businesses operate and more than half of the net revenue is generated. It is therefore necessary to support the development of peripheral areas, improve transport infrastructure, and strengthen local economic development.
3. **Supporting the integration of foreign workers.** Key elements of the integration of Ukrainian refugees include language support, improved access to labour market information, and the provision of social services. Organisations such as the Hungarian Red Cross play an important role in this process by providing Hungarian language courses, community events, and health screening programmes. These initiatives should be expanded and integrated into a more systematic framework.
4. **Supporting digitalisation and technological development.** Among small and medium-sized enterprises, digitalisation still plays a marginal role and modern technologies are rarely applied. It is necessary to support the digital transition of businesses and develop the digital competencies of workers, with particular attention to older generations.
5. **Targeted solutions to labour shortages.** Labour shortages are particularly significant in industry and manufacturing, logistics, healthcare, education, and the IT sector. The agricultural sector also faces a significant shortage of professionals, including machine operators, livestock breeders, machinery technicians, gardeners, agricultural technicians, and mechanical technicians. Targeted training and retraining programmes should be launched in these areas, accompanied by incentives encouraging individuals to choose shortage occupations.
6. **Expanding flexible forms of employment.** Remote work is becoming an increasingly widespread form of employment in Hungary. Around 70% of companies apply it in some form, especially in the technology, financial, and administrative sectors. Hybrid working arrangements, which combine several days of office presence with remote work, are becoming increasingly common. The expansion of flexible working arrangements should be supported, particularly in peripheral regions where they could increase employment opportunities.
7. **Preparing for an ageing society.** Population ageing places increasing pressure on the labour market, as fewer young people are entering the workforce while older generations are more difficult to mobilise. It is therefore necessary to support the employment of older workers, provide training programmes for them, and introduce more flexible retirement options.

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