

THE ROLE AND TERRITORIAL CHARACTERISTICS OF ADULT TRAINING ON THE INTEGRATION OF REGISTERED JOBSEEKERS INTO THE LABOUR MARKET IN SZABOLCS-SZATMÁR-BEREG COUNTY (HUNGARY), 2010–2020

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Abstract: The primary aim of adult training for job seekers is to help participants reintegrate into the labour market as soon as possible. The high unemployment rate and the low employment rate in the examined area (Szabolcs-Szatmár-Bereg county) led the Hungarian Government to retrain job seekers. The aim of the study is to examine the spatial pattern of training for registered job seekers and its effectiveness in helping them to find a job in the primary (or secondary) labour market. The research was carried out using secondary data, provided by the Ministry of Innovation and Technology and the National Employment Service in Hungary. Our research has highlighted the territorial links between human resources, adult learning and job opportunities. Adult training and public employment opportunities had a strong impact on the development of the labour market.

Keywords: employment, job seeker, unemployment, adult training, secondary labour market, regional inequalities, Hungary

Absztrakt: Az álláskeresők felnőttképzésének elsődleges célja, hogy a résztvevők minél hamarabb visszailleszkeskedjenek a munkaerőpiacra. A vizsgált területen (Szabolcs-Szatmár-Bereg megye) a magas munkanélküliségi ráta és az alacsony foglalkoztatási ráta miatt a magyar kormányzat az álláskeresők átképzését kezdeményezte. A tanulmány célja, hogy megvizsgálja a regisztrált álláskereső képzésének területi mintázatát és annak hatékonyságát az elsődleges (vagy másodlagos) munkaerőpiacon való elhelyezkedésük segítségével. A kutatás másodlagos adatok felhasználásával készült, amelyeket az Innovációs és Technológiai Minisztérium és a Nemzeti Foglalkoztatási Szolgálat bocsátott rendelkezésünkre Magyarországon. Kutatásunk rávilágított a humán erőforrás, a felnőttképzés és a munkalehetőségek közötti területi összefüggésekre. A felnőttképzések és a közfoglalkoztatási lehetőségek nagy hatással voltak a munkaerőpiac alakulására.

Kulcsszavak: foglalkoztatás, álláskereső, munkanélküliség, felnőttképzés, másodlagos munkaerőpiac, regionális egyenlőtlenségek, Magyarország

Highlights

- Counties in the north-east of Hungary have high unemployment rates.
- The centre-periphery relationship prevailed in terms of the absolute number of job seekers.
- Training for job seekers could be a solution to the high unemployment rate.
- Training has only partially fulfilled the expectations.

1. Introduction

The most important step for the integration of job seekers into the labour market is to acquire a new marketable qualification to reduce unemployment. As the fastest and most flexible form of training, non-formal adult education can respond to labour market changes in the shortest possible time, as it takes 3–6 months to acquire a new qualification in this form of training, whereas in the school system, it takes years to learn these skills. The main objective of the current Government is to achieve full employment, so integrating job seekers into training and thus acquiring new marketable skills is the first step towards achieving this goal.

Active labour market instruments are the most effective in helping people to re-enter the primary labour market, and training is the most effective of the active labour market instruments in transferring new marketable knowledge, which can help reintegrate those who have been excluded from the primary labour market (Hajdú & Koncz, 2022). In Hungary, the primary labour market is the group of workers in

the private sector. The secondary labour market is made up of subsidised persons who perform public tasks in jobs created by the state and work for a fixed period of time (4–6–9–12 months). In Hungary, a special branch of the primary labour market is the public employee, as only those are considered secondary labour markets in which some form of public assistance is required to employ the individual (Vámosi, 2013). Public employees are those working in public and state institutions in education, health, social services, public administration, the armed forces, etc.

Public employment provides an income mainly for people receiving social benefits, including employment substitution assistance. These people are unable to take up new jobs for a long time because of a lack of job opportunities, perhaps because of their low level of education or because they have lost work experience (Cseres-Gergely & Molnár, 2014). Public employment activities improve among other things, the social, health, educational, cultural and transport situation of municipalities and the usability of public spaces. Public employment provides access to social security, such as pensions and job-seeker's benefits, and facilitates entry and re-entry into the primary labour market (Hajdú, 2021).

In Hungary's rural, peripheral regions, there are a significant number of people who have never worked in any form of employment (Hajdú & Koncz, 2021; Jeney & Varga, 2016). Following the regime change, social policy in Hungary has also undergone a significant transformation. The system of case-by-case, individualised council allowances has been replaced by a system of support worth billions of euros. In parallel with the transformation of the assistance system, economic mechanisms have resulted in an increasingly striking income inequality in society. The debates around the questioning of the fairness of the distribution and how the need is assessed have led to almost unquenchable conflicts and passions. The social care system did not know what to do with healthy people of working age who had been excluded from the labour market for 15–20 years, or who had never entered it (Csoba, 2010). Numerous studies have shown that the Hungarian labour market is 'extremely segmented' (Kertesi, 2000). In Hungary, the primary, if not the only, access to work and the regular monthly income that it generates is for those who have had it before. Once a person becomes a recipient of benefits, there is a strong chance that he or she will remain a client of the offices for a longer period (Török, 2020).

1.1 Research aims

- One of our research objectives is to highlight the extent to which the availability of subsidised training for jobseekers affects the number of participants in adult education.
- We consider it important to show that the emergence of public employment in our country has had a negative impact on the chances of those excluded from the labour market to find a job in the primary labour market.
- Our aim is to highlight the disparities in the geographical location of the county's labour market problems and the training institutions that help to solve them, which means that people living in peripheral areas are less likely to benefit from training, thus contributing to their further marginalisation.

2. Theoretical background

2.1 The importance of training the unemployed

When someone becomes unemployed, there are three ways back into the labour market. The first is to find a job in some way, which usually depends on professional skills, experience, luck and sympathy. The second is by becoming a public employee, and the third is by attending a training course for the unemployed and after passing an exam, being likely to find a job (Cedefop, 2013). Of the three groups, we have given priority to public employment and the labour market training system, as these two topics are important literature for the primary research of this study. Public employment was already emerging in Hungary from 1987, but it was only regulated from 1991. This type of employment was one of the means to reduce unemployment after the change of regime (Bördös, 2015).

When examining the labour market, two sets of factors should be taken into account when looking at career entry. One is the economic transformation, the occupational structure has been continuously modified during its use, the post-industrial character of the economy is strengthened, the business environment seeking career starters is changing. The other set of factors are indicated by key concepts such as the increase in precariousness, the increase in flexibility (flexibility) and the spread of atypical employment (ILO 2015, 2018). Thus, in practical terms, it can be said that training and work are both supply and demand side (fast-moving) changes. These transformations generate an incongruence between the demand for jobs and the supply of training. A specific form of this is the (early career) graduate employment mismatch, which results from the mismatch between the structural supply and demand for graduates (Green & Henseke, 2021).

There are frequent changes on the supply side of the education system and the demand side of the labour market. How smoothly this happens depends on the relationship between education and training. In this respect, there are distinctive 'regime differences', depending on the extent to which the education system is standardised and the practical orientation of the training content. Where the content of the training is more standardized and the vocational nature of the training is stronger, new entrants find jobs more quickly and employers receive positive feedback on the training (Shavit & Müller, 1998; Gangl, 2002; Wolbers, 2007). The active instruments of the labour market (training, employment support, public employment, active job search assistance) help the long-term unemployed or other social groups not present in the labour market to return to work in a stable way (Hudomiet & Kézdi, 2008). Passive tools of employment policy, on the other hand, reduce the handicap of unemployed people, however have no direct impact on the labour market situation of those receiving benefits (Harasty, 2004).

Vocational training plays a crucial role in helping young people move from school to work. Despite this role, previous research has tended to neglect the possibility of a return to vocational training. Choi et al. (2019) examined the individual returns to VET over the entire life course and evaluated the impact of national VET systems, including school-based and work-based vocational education and training systems, on economic outcomes. Their most significant finding is that there are significant differences between work-based and school-based vocational education and training systems in terms of their impact on skills and employment. Graduates of work-based training are initially more likely to find a job, but the benefits diminish with time in employment (Choi et al., 2019). Workforce development is the set of processes that govern the identification, recruitment, assessment and induction of job seekers into employment, and the maintenance and advancement of these individuals in their careers. Given the complexity of workforce development, we illustrate a systems approach to ensure that the broader goal of human capital investment is achieved (Holland, 2015). Continuing professional education (CPE) is seen as a key strategy to combat unemployment and improve the labour market position of low-skilled job seekers. However, the compulsory nature of these programmes raises questions about the motivation of job seekers to enrol and participate in training and, by extension, the effectiveness of the programmes. In addition, researchers have so far failed to address the different personal goals that unemployed people attach to CPE. However, goals are considered to be a central determinant of motivation and behaviour. To overcome these limitations, this paper aims to investigate the multiple goals that low-skilled job seekers pursue in CPE programmes and to examine the dynamics of achieving multiple goals (Jacot et al., 2019).

Education, its efficiency and accessibility, affect the competitiveness of regions (Agranovich, 2020). This is why a knowledge-based economy is crucial, with knowledge, intellectual capital and lifelong learning at its core as the driving force of the economy (Korshunov & Gaponova, 2017). One of the great advantages of adult learning is that it helps to adapt to labour market changes as quickly as possible, while school-based training can provide the right workforce for the same problem years later (Mayer, 2000). Workers with low educational attainment are increasingly excluded from the labour market because they lack even the minimum competencies (Köllő, 2009). This is because nowadays jobs are not filled on the basis of education alone. Those whose knowledge can be upgraded quickly and who can be easily retrained are preferred (Ábrahám, 2015). Adult vocational training is mostly provided outside the school system, but it can also be started within the school system (Váradi, 2004). Labour market training accounts for the bulk of out-of-school training, which includes both complementary and vocational training (Kraiciné Szokoly-

Tibori, 2007). The main providers of non-formal training are employment centres, educational institutions and employers. Adult vocational education and training are mostly provided in the form of non-formal education and training aimed at improving and maintaining the employability of workers and job seekers, and therefore the effectiveness of the system is a priority (Card, 2011).

Lifelong learning enables workers to adapt to the constantly changing needs of the labour market. But supported training also plays an important role in the labour market integration of disadvantaged people (Hajdú & Koncz, 2021). The vast majority of EU-supported training is training, competence training and general adult education, which contribute to the acquisition of a range of competencies but have little labour market potential and economic impact (Hajdú, 2020).

In rural areas like our study area, the priority should be to provide training that can foster entrepreneurship, thus contributing to the strengthening of underdeveloped rural areas. Training for job seekers is mostly concentrated in cities with county status, further disadvantaging people living in rural areas. The labour market situation is therefore an important element of harmonious territorial development (Egri & Tánczos, 2016; Egri & Kőszegi, 2018; Veselicz et al., 2022).

Participation in adult education is perceived as a constraint by some and as a new opportunity by others, who are open to acquiring new knowledge. Participating individuals also differ in their perceptions of the effectiveness of adult learning in promoting employment opportunities. Most often, job seekers in the counties where adult learning is most needed miss-out and reject opportunities, and for this reason, disadvantaged counties have the lowest rates of adult learning, contributing to the decline of the county, which in the long run causes even greater disadvantages (Köllő, 2009). Training for the unemployed is an important component of improving employment outcomes for those with economic disadvantages and barriers to employment (Sehun et al., 2020). Job training can be an important service component to reduce substance misuse and improve employment outcomes among young people with economic disadvantages and employment barriers.

2.2 Regional differences in the Hungarian labour market

The impact of the regime change has also significantly affected the North Great Plain region and Szabolcs-Szatmár-Bereg county. In contrast to the adjustment processes observed in developed market economies, Fazekas (1997), examining regional differences in unemployment in Hungary in the few years following the change of regime, found three basic characteristics: regional differences in unemployment are relatively large; the extent of regional differences has remained essentially unchanged in recent years; the position of individual regions in the order of the magnitude of local unemployment rates is very stable. The question is whether these findings are still valid 25 years later.

G. Fekete (2006) has grouped the regional backwardness in the region around five factors: demographic imbalance, isolation, lack of needs, the low income-generating capacity of the region and inadequate use of environmental factors. He concluded that the cause-effect relationship makes it difficult to identify the real cause of the region's disadvantage.

In 1992, the employment rate in Hungary was 52%, but the change of regime led to a steady decline in employment (Fig. 1). The decline continued until 1996, when it stopped at 46%. From 1997, the Bokros package brought a turnaround, with employment rising at a more dynamic rate until 2000, when it fell again. The exit from the crisis led to a period of real prosperity between 2013 and 2019, with very strong employment growth, before the coronavirus epidemic broke this momentum (László, 2022). The Northern Great Plain region has lagged significantly behind the national average in all periods, with an employment rate of 59.4% in 2021.

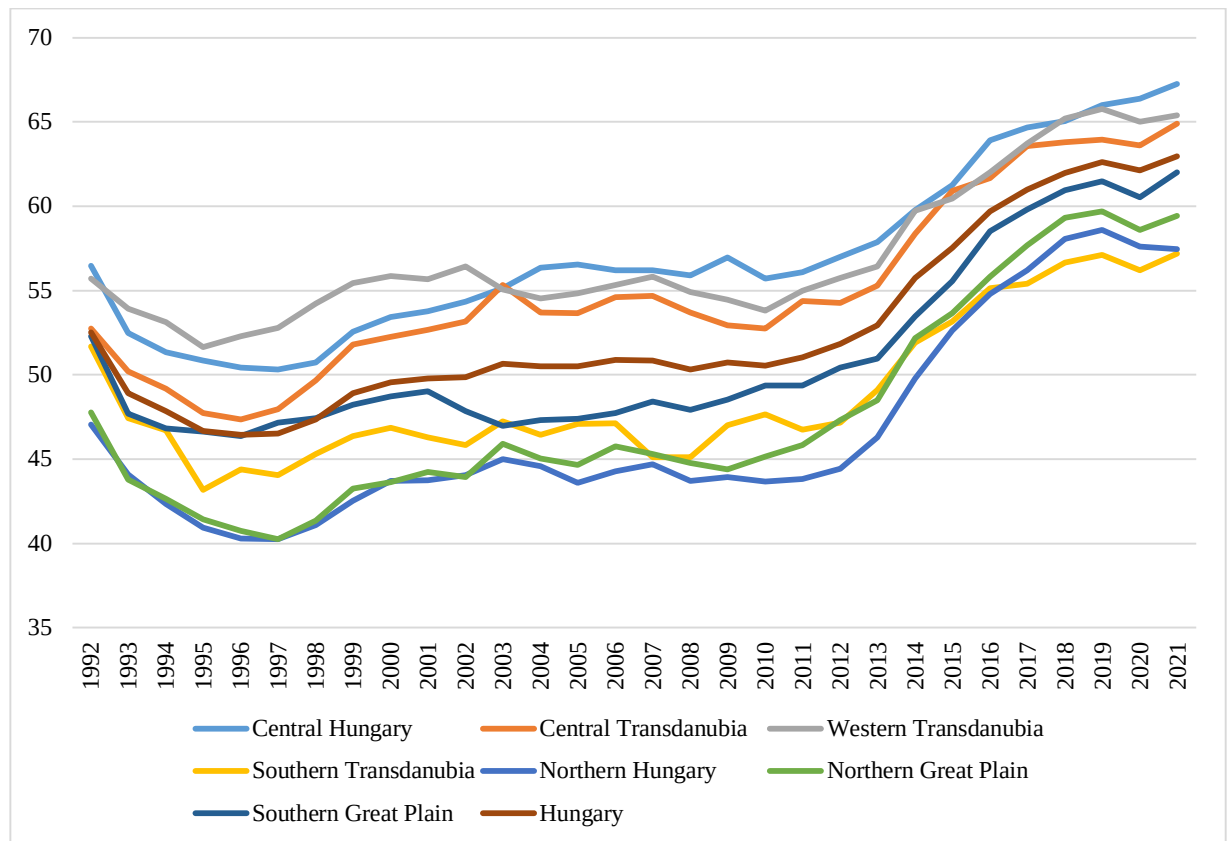


Fig 1. The employment rate in Hungarian regions (%), 1992–2021. Authors' edition

The unemployment rate (Fig. 2) was in a wider range than the employment rate. The first phase (1992–2001) consisted of a very rapid increase followed by a slower, longer-term decline, while the second phase consisted of a longer-term increase (2001–2012) followed by a very rapid decline (2013–2019). After a peak in 1993, the rate reached its minimum value both nationally and regionally in 2001. This was followed by a slow increase, reaching high unemployment rates immediately after the regime change in 2010. The improvement in unemployment was accompanied by a regional convergence until 2001, after which the gap between the national average and the Northern Plain values increased again. The high level of unemployment rates is due to the region's below-average business and industrial capacity. Unemployment problems are not the result of some short-term effect, but of specific characteristics between regions that have a long-term impact. Since the accession to the European Union, the North-Hungary and North Great Plain regions in Hungary have been lagging behind the rest of the country in terms of the labour market and economic indicators.

Analysing the labour market trends and the general socio-economic background, we can see that among the Hungarian regions, the position of the Northern Great Plain region is not favourable, with significant regional differences and a large gap with the national average (Lipták, 2013; Káposzta, 2014; Csugány & Kozák, 2018).

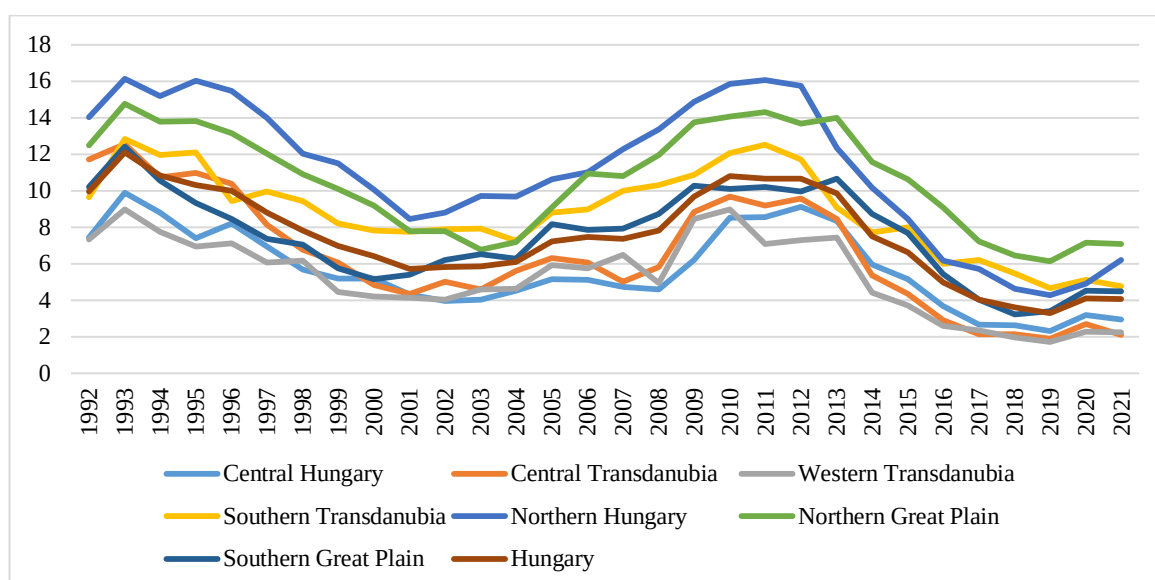


Fig 2. The unemployment rate in Hungarian regions (%), 1992–2021. Authors' edition

2.3 Long-term unemployed and their training

Studies in Hungary have shown that employability programmes are most likely to improve the situation of those at risk of long-term unemployment, those with low educational attainment and young jobseekers. People at risk of long-term unemployment include those registered for more than three months, people living in disadvantaged settlements, gypsies and affected by collective redundancies. Labour market forecasts, monitoring of job vacancies and vacancies, and permanent contacts with employers have helped to professionalise the programmes. Careful planning, information, training and mentoring of beneficiaries, good relations with employers and training institutions, and long-term support opportunities to help with integration are considered to be the most important elements of success (Tésits et al., 2016).

Previously, economic, territorial and sociological studies have assessed the social territorial impact of employment programmes (Koltai, 2012; Ghinararu, 2012). Recent programmes can also provide a temporary livelihood for the most disadvantaged jobseekers and their families who are not competitive in the primary labour market. They do this by meeting the needs of the municipalities in a way that is commensurate with their own needs. The role of social cooperatives as job creators has been the subject of several studies (Giagnocavo, 2012; Borzaga et al. 2014). The studies underline that programmes are essential to help the unemployed in disadvantaged areas to support themselves. Through cooperatives, they have the opportunity to join a community where they can generate income for their daily living. Working in cooperatives also has job socialisation benefits. If socio-economic conditions are positive, social cooperatives can function as an intermediate labour market, increasing the chances of progression towards the primary labour market.

Immediate results have been achieved in wage-related subsidies for manufacturing, trade and services. Vocational training is a priority when there is a shortage of skilled labour. Those with the lowest educational attainment are less effective and less likely to be involved in employability programmes. Many prefer to work in the informal sector or do not want to work at all, so future programmes should seek out and include the economically inactive. It goes without saying that the legal prerequisites for their integration into the labour market must first be put in place, often starting with the preparation of identity documents and registration at the district office (Tésits et al., 2016).

For jobseeker training participants in Hungary, their participation in training is not to get back into the primary labour market as soon as possible, but as a means of earning a living, in addition to the income support they receive during training. In other words, the issue of retraining is one of financial benefit rather than social benefit. After the courses, participants are re-unemployed, and are interviewed by

the employment department on the 180th day after the training to see whether they have successfully found a job in the primary or secondary labour market, or whether they have been unemployed since. In fact, once they have completed their training, their "they release their hands" and they will only be able to receive assistance for their employment (Hajdú & Koncz, 2021).

On the basis of Article 14 of Act IV of 1991 on the Promotion of Employment and Unemployment Benefits and Articles 1–7 of Ministry of Labour Decree No 6/1996 (16 July) on employment promotion aid and aid from the Labour Market Fund for dealing with employment crises: aid may be granted from the National Employment Fund for the training courses specified in the Decree. Every year, county government offices identify and publish the training specialisations that provide support for registered jobseekers and people from the target groups identified in EU programmes to participate in training.

Three categories of training support for jobseekers in relation to their social and marital status:

- 1) reimbursement of training-related expenses,
- 2) reimbursement of reasonable expenses incurred for the care, care and supervision of a dependent relative in order to enable him or her to attend training,
- 3) earnings replacement support.

The amount of the earnings-related benefit may not be lower than 60 per cent of the mandatory minimum wage in force at the time of its establishment and may not exceed the amount of the minimum wage in force at the time of establishment (Hajdú, 2021b).

3. Methodology

3.1 Description of the study area

Our research focuses on Szabolcs-Szatmár-Bereg county, whose rural character is reflected in the fact that 55.7% of the population lives in settlements with a population density of fewer than 120 inhabitants per km². Before starting the analysis of the county's adult education-specific data series, we examined its position within the country and changes in its position after the turn of the millennium using some key socio-economic indicators. As these descriptive analyses have served as a basis for our further investigations, we do not aim to be exhaustive, but would like to point out some of the more important correlations for further studies.

It is widely known in Hungary that the county of Szabolcs-Szatmár-Bereg is not one of the more developed counties in the country, but we thought it important to draw attention to this with accurate, data-supported information. The most common way of measuring development for counties and larger territorial units is to compare per capita Gross Domestic Product (GDP) data. In this respect, the capital city and the northern regions of the Transdanubian region, which are far from the study area, are in a favourable position. With 58.8% of the national average, Szabolcs-Szatmár-Bereg county is in second last place (although it is only 0.1% behind Békés county, while it is 14.5% ahead of Nógrád county in the last position).

One of the key objectives of regional policy is to reduce territorial disparities by reducing the handicaps of the less developed regions. In the case of Szabolcs-Szatmár-Bereg county, we have seen that in 2019 it occupied the penultimate position, but it is also important to know whether it has managed to reduce its development trajectory in the preceding period and whether it has managed to reduce its gap with other regions of the country. The data series for the period 2000–2019 show that the relative position of the county is almost identical at the two ends of the period (Fig. 3). The county's indicator was at its highest in 2001, but then fell back for almost a decade, followed by a catch-up and stagnation in the 2010s. In the last two years there were clear signs of catching up.

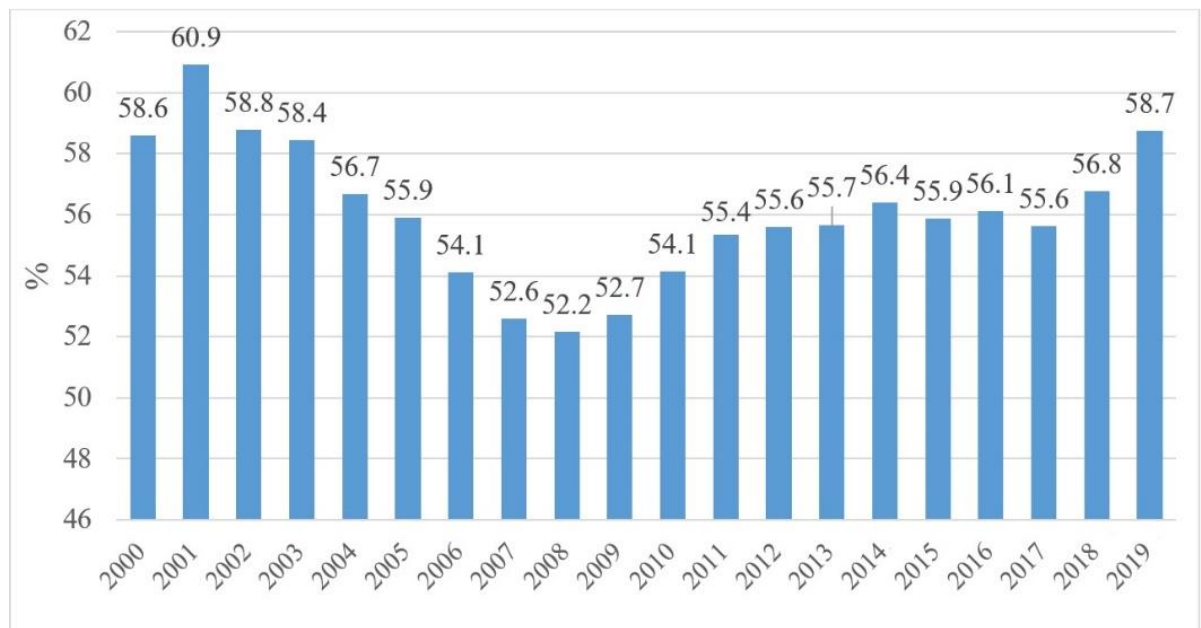


Fig 3. Gross domestic product (GDP) per capita in Szabolcs-Szatmár-Bereg County as a percentage of the national average, 2000–2019 (%). Authors' edition

An important component of the economic performance indicator described so far is the economic activity of the population and, within that, the employment rate. The latter indicator is adversely affected by the presence of unemployment. The unemployment rate is also one of the most commonly used development indicators, but in our present study, it is given additional importance by the fact that the participants in subsidised adult education are job seekers. In terms of the unemployment rate of the population aged 15–64, Szabolcs-Szatmár-Bereg county was in the worst position in the whole country in 2019, several times higher than the most developed counties (Fig. 4). Another negative factor is that the two counties bordering the county also have worse-than-average figures, which means that the conditions for commuting are less favourable than in Nógrád county, for example.

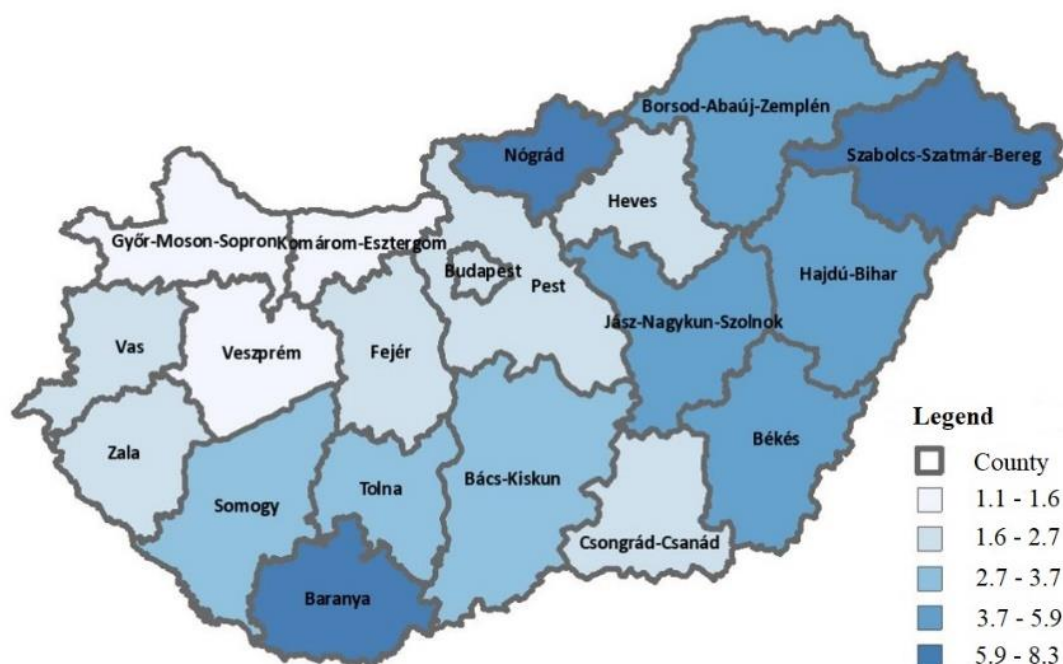


Fig 4. Unemployment rate of the population aged 15–64, 2019 (%). Authors' edition

Following the positioning of Szabolcs-Szatmár-Bereg county within the country, we also wanted to know what characterises the inequalities within the county based on the development indicators available at the district and settlement level. How are spatial structural characteristics manifested in terms of spatial and settlement network aspects? We would like to point this out based on the income per permanent inhabitant in the personal income tax base (also a very important indicator in the analysis of spatial disparities). Based on this indicator, the most favourable category within the county includes the county capital (Nyíregyháza), some major district centres (e.g., Kisvárd, Mátészalka, Fehérgyarmat) and one or two smaller neighbouring settlements (Fig. 5).

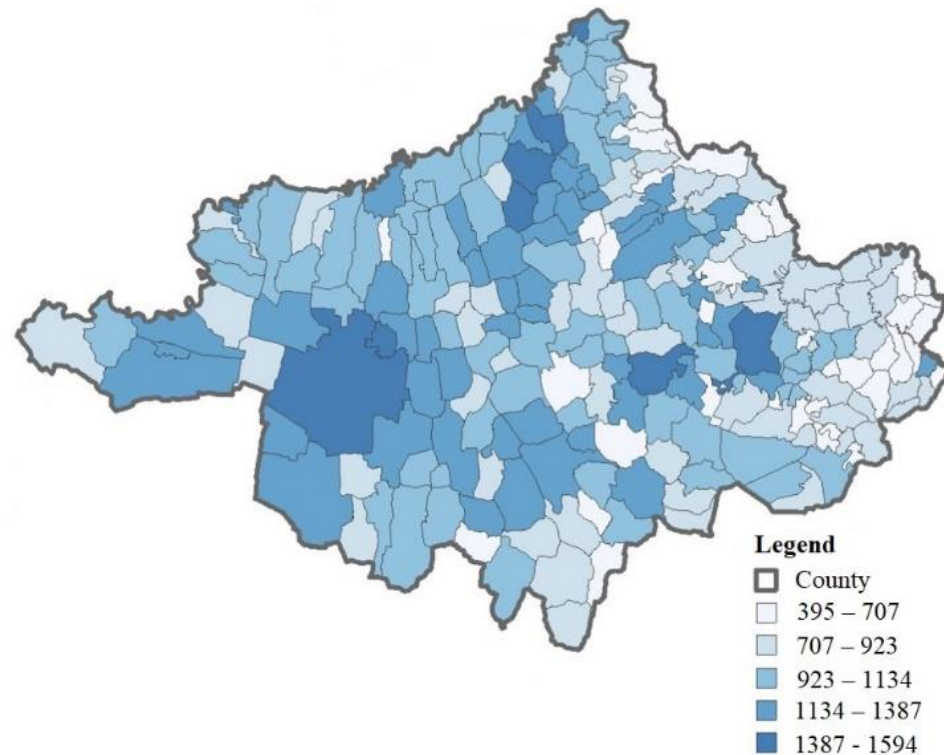


Fig 5. Personal income taxable income per permanent resident, 2019 (thousands HUF). Authors' edition

The majority of the settlements with the lowest values are small and peripheral villages along the Ukrainian and Romanian borders. The differences are quite marked in terms of the hierarchy of settlements, but the map also clearly shows the spatial structure lines defined by the main transport routes and a West-East divide within the county.

3.2 Databases and statistical methods used in the research

Before starting the studies, we systematically collected and processed national and international textbooks and journal articles, most available in full text via the internet, that were relevant to the topic chosen. Following the literature review, we based our research on secondary databases. We processed time series of statistical databases on registered job seekers, vacancies and participants in training courses for job seekers for the period 2010–2020. The databases on job seekers were compiled from data available on the website of the National Employment Service. Data on the number of participants in adult education and training were collected from the OSAP 1665 statistical interface of the Pest County Government Office and sorted into databases. Our secondary research focused on Szabolcs-Szatmár-Bereg county. The data of the county were compared with the average values and trends in Hungary. Data on the status of those who completed labour market training (180 days after the end of training) were processed by the Ministry of Innovation and Technology.

The compiled databases were processed and evaluated using Microsoft Office 2013. ArcGIS 10.6.1 geospatial software was used for the spatial analysis of the calculated statistical data and

the representation of the results on a cartogram. To explore the spatial correlation of the participants in the training courses, a spatial autocorrelation study was performed using the Local Moran I method, the formula of which is as follows:

$$the\ I = \frac{n}{2A} \frac{\sum_{i=1}^n \sum_{j=1}^n \delta_{ij} (y_i - \bar{y})(y_j - \bar{y})}{\sum_{i=1}^n (y_i - \bar{y})^2}, \quad (1)$$

where:

- n - is the number of area units under study;
- y_i, y_j - are the values of the variable under study in each area unit;
- $\bar{y}$ - is the arithmetic mean of the indicator under study;
- A - is the number of adjacency links;
- δ_{ij} - is 1 if i and j are adjacent, and 0 otherwise.

If $I > -1/n-1$, the autocorrelation relationship has a positive sign, if $I < -1/n-1$, the autocorrelation relationship has a negative sign. In the case where $I = -1/n-1$, no statistically robust autocorrelation relationship can be detected between the territorial units (Tóth, 2014; Egri, 2017).

To explore spatial patterns, we used the local test function of spatial autocorrelation, the univariate Local Moran I method developed by Anselin in 1995. This method can be used to detect areas that are similar to each other or different from their neighbours (Tóth, 2014, p. 62). The formula used to calculate the Local Moran I statistic:

$$I_{i,t} = z_{i,t} \sum_i W_{ij} z_{j,t} \quad (2)$$

where:

- $z_{i,t}$ - are the standardised values of the observation units at time t;
- $z_{j,t}$ - are the standardised values of the observation units at time t.

In the case of univariate Local Moran, $z_{i,t}$ and $z_{j,t}$ refer to the same dataset. W_{ij} is the spatial weight matrix (Anselin, 1995). Based on the results obtained, we classified the spatial units into four groups:

1. high-high (HH): spatial units with high values, for which the neighbouring units also have high values,
2. high-low (HL): land units with high values, where the neighbouring units also have low values,
3. low-low (LL): land units with low values, where the neighbouring units also have low values,
4. low-high (LH): land units with low values where neighbouring units also have high values (Tóth 2014, Egri 2017, Hajdú 2021).

The significance filter for Local Moran I was set to 0.05 in ArcGIS software and the number of permutations was set to 999.

The number of adult education participants was aggregated at district (LAU 2) level. For the spatial aspect of the aggregates, hotspot analysis was performed using general G statistics. For the analysis, a "queen neighbourhood" weight matrix was used, with a significance level set at $p < 0.05$.

Correlation and regression analyses can be effectively used to analyse the relationships between two ratio scales of measurement-level variables, the latter being able to reveal causal relationships between variables. In our research, we use regression analysis to show the spatial differences between job seekers and participants in adult education supported by the Government Office, and between those who are in the primary and secondary labour market after the training, in the districts of Szabolcs-Szatmár-Bereg county.

4. Results and discussion

The county of Szabolcs-Szatmár-Bereg has the largest number of adult education graduates in Hungary after the capital city. The number of participants in adult learning increases in the longer term, although there have of course been years of slight decline, as in the country as a whole. The biggest drop was in 2016, when tender closures made it difficult for adult education staff to integrate smaller numbers into training due to a lack of resources. The decline in 2020 is not only due to this, but also due to the coronavirus epidemic, adult education groups were closed for 3 months and no new training could be started. The highest number of participants in training was in 2019, both in the county and in the country, but the county trained the highest proportion in 2018, when Szabolcs-Szatmár-Bereg county accounted for almost 8% of all adult education participants in the country (Fig. 6).

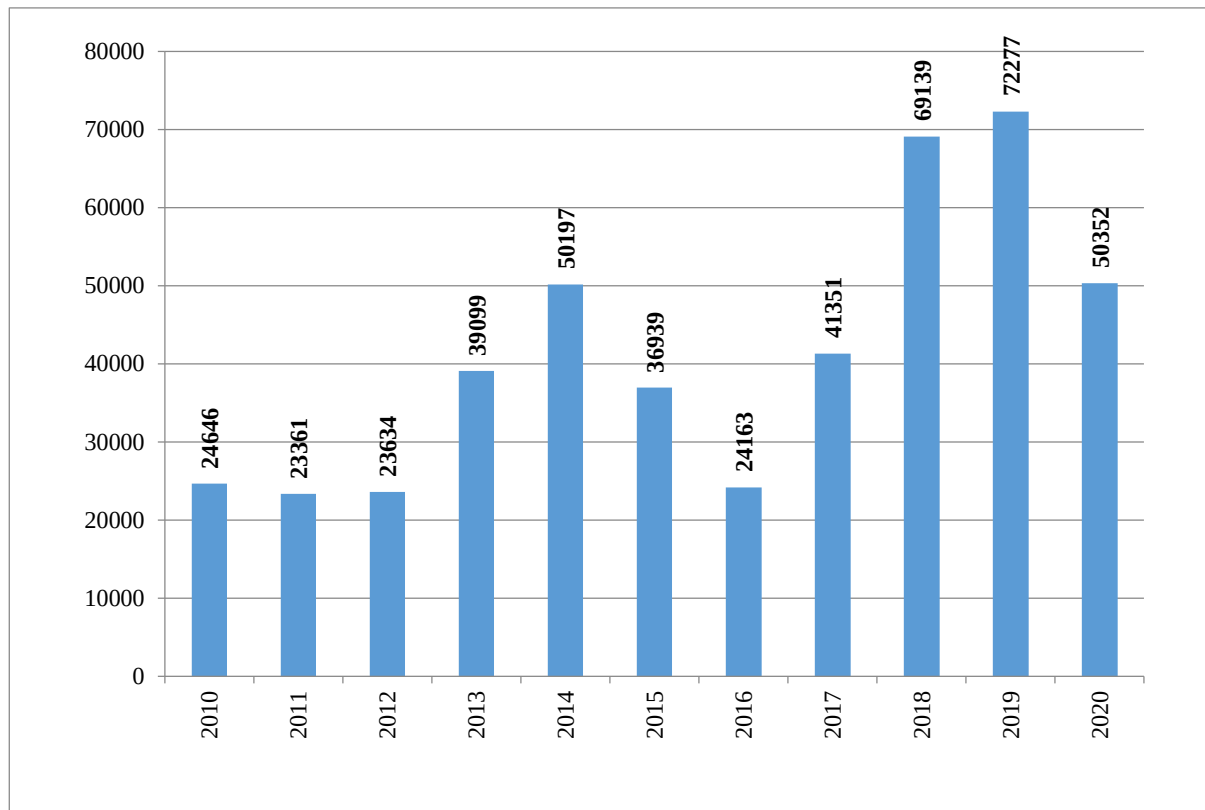


Fig 6. Participants in adult education in Szabolcs-Szatmár-Bereg county (2010–2020). Authors' edition

4.1 Statistical analysis of job seekers registered with the Government Office

In Szabolcs-Szatmár-Bereg county, the number of job seekers involved in training by the Government Office showed a fluctuating trend in the period under review. The 11 years under examination can be divided into 4 phases, with an increase between 2010–2014, a continuous decrease between 2015–2016, a slight increase until 2017–2018 and a continuous, drastic downward trend from 2019. Unemployment data for the county showed a slight decrease during the period under review. The highest proportion of job seekers enrolled in adult training by the Government Office was in 2014, which was not due to the low number of unemployed but to the high number of people enrolled in training (Fig. 7).

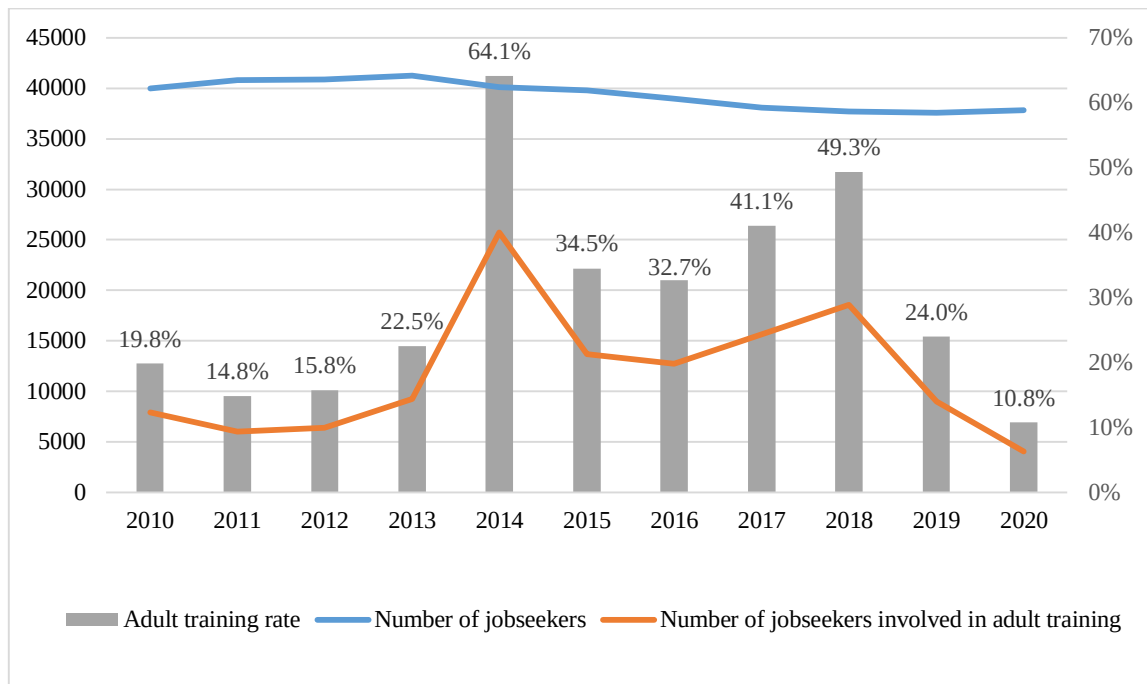


Fig 7. Share of job seekers enrolled in training supported by the Szabolcs-Szatmár-Bereg County Government Office about unemployment. Authors' edition

The success of training and of adult education for jobseekers itself is measured in terms of the employment rate of those trained. Szabolcs-Szatmár-Bereg county has undergone strong changes in terms of employment rates over the last 11 years. The term secondary labour market refers to public employment, the emergence of which has completely reshaped the employment structure of those who completed training. Employment in the primary labour market was the most successful in the county in 2010, when public employment was not yet flourishing, and has been on a steady downward trend since then. The proportion of people in public employment (secondary labour market) showed a strong linear increase until 2014, when the county had the highest number of people in training, and a sharp decline from then on. Looking at the co-location of the two labour market sectors, we can see that the emergence of public employment has reduced the number of people in the primary labour market, but the emergence of the secondary labour market in the first years has had an increasing effect on the employment rates (Fig. 8).

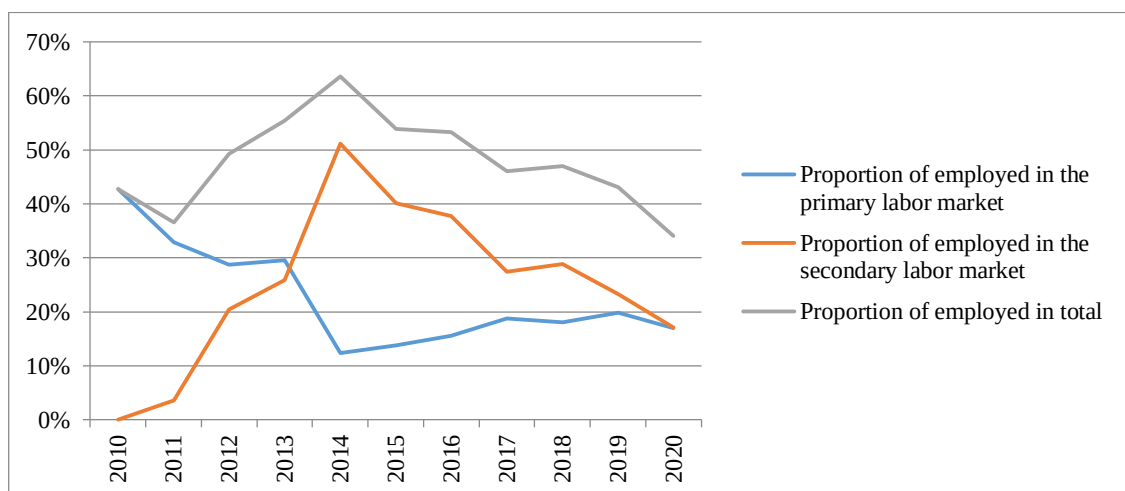


Fig 8. Employment rates of job seekers in the primary and secondary labour market in Szabolcs-Szatmár-Bereg County (2010–2020). Authors' edition

When looking at the gender distribution of employment in the two labour market sectors, it was found that in the primary labour market, men and women are relatively equally represented, while in public employment, the employment rate of women is 4% higher. By age group, job seekers under 25 years of age were more likely to find work in the primary sector, while the 25–54 age group and the 55+ age group were most likely to find work in public employment. The largest difference in terms of proportions was in the over-55 age group, where it was 21.3% more than the primary labour market. Looking at the highest educational attainment, the lower the educational attainment of those who successfully completed training, the higher the chances of finding a job in public employment than in the primary labour market. Job seekers with at most primary education were the most likely to find a job in public employment, followed by 16% more likely to find a job in the primary labour market. For those with upper secondary education, this ratio has been reversed, as those with primary education found jobs in the primary labour market outnumbered those in the secondary labour market by 12.5%. Those with tertiary education were in the best position to find a job, with more than 40% of those who found a job in the primary labour market (Fig. 9).

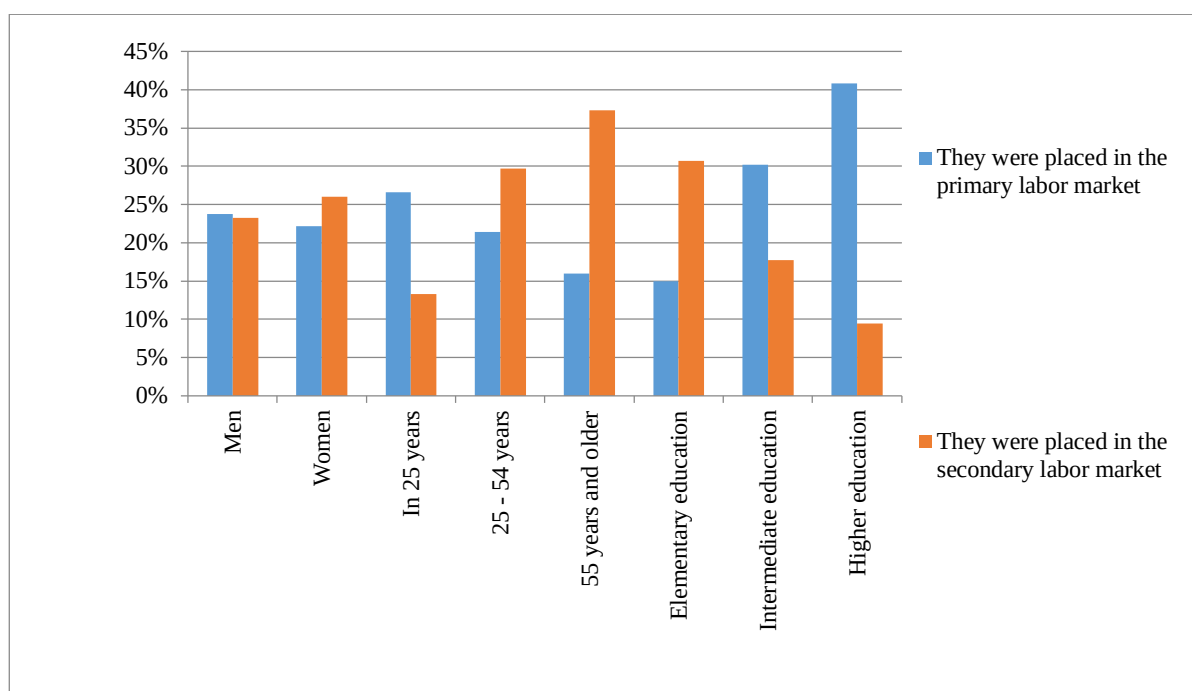


Fig 9. Employment rates of job seekers in the primary and secondary labour market of Szabolcs-Szatmár-Bereg County Government Office in job seekers' training courses by gender, age group and highest educational level in the 11 years of the survey. Authors' edition

The county of Szabolcs-Szatmár-Bereg has the largest number of participants in adult education in rural areas of Hungary. The share of job seekers trained by the Government Office about the total number of participants in adult education has exceeded 16% on average over the last 11 years. The largest increase was in 2014, when 32.7% of the participants in adult education were job seekers trained by the Government Office. There was a steady decline in the following years, with only 2.6% of job seekers enrolling in training by 2020 (Figure 10).

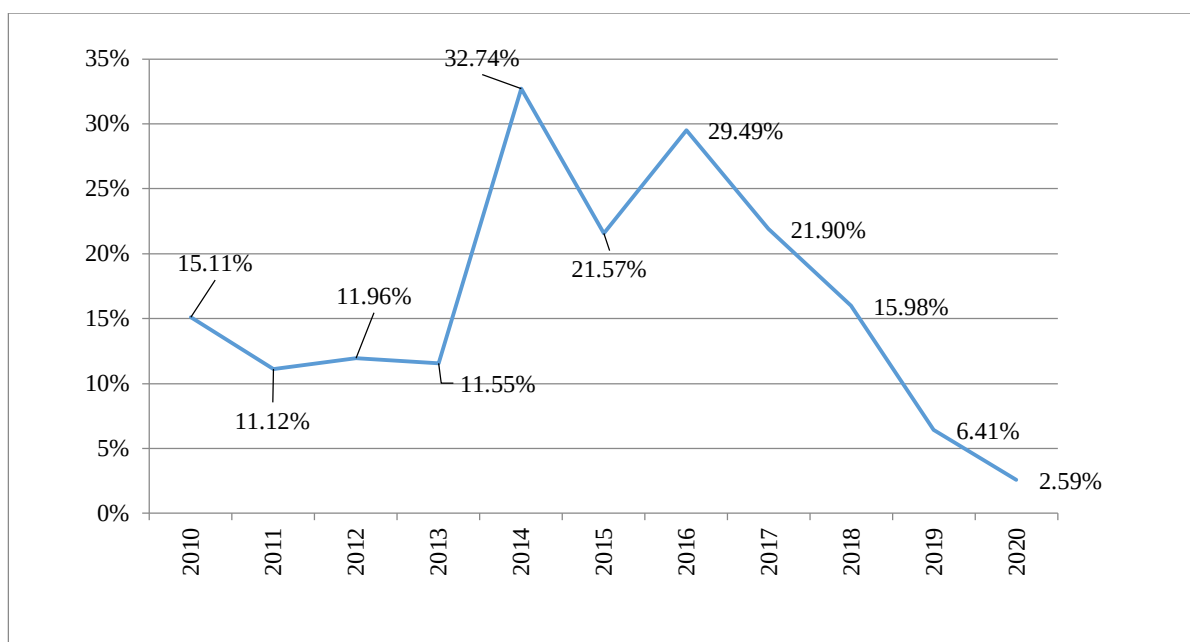


Fig 10. Proportion of participants in training for job seekers about the number of adult education places in Szabolcs-Szatmár-Bereg county (2010–2020). Authors' edition

4.2 Regional analysis based on participation in training for job seekers

The analysis at the district level of Szabolcs-Szatmár-Bereg county revealed that the district of Nyíregyháza, i.e., the county capital, had the highest number of participants in training in the period under review. The districts of Mátészalka and Kisvárdá also had a high number of adult education participants. However, this is not necessarily due to labour market problems, but to the role of these central cities in the region and their institutional facilities. Three districts had low numbers of participants in training for job seekers. The Záhony district was negatively affected by the location of its border residents (Ukraine) and received less support. The situation was similar for the districts of Csenger and Ibrány due to their peripheral location and small size.

The districts of Szabolcs-Szatmár-Bereg county show a different picture in terms of location in the two labour market sectors. In terms of employment in the primary labour market, three districts of the county (with basically high employment rates) had a high share of primary labour market employment for those who successfully completed training. These three districts (Nyíregyháza, Kisvárdá and Mátészalka) are basically the economic drivers of the county. The Záhony district was the most difficult in terms of employment. The number of people in public employment (secondary labour market) is the complete opposite of the number of people in the primary labour market. The highest number of job seekers in public employment was in the Fehérgyarmat district, where it can be seen that while the primary labour market had an employment rate of around 16%, the secondary labour market had an employment rate of 37%. Without the support of the Hungarian government, the district's easternmost geographic location and small settlements are not attractive to private investors. Public employment programmes are therefore essential every year. Three other districts in the county had high rates of employment in public employment, Záhony, Nagykálló and Kemece. In the case of the Záhony district, it can be observed that, with just under 9% of people in the primary labour market, the proportion of people in public employment was over 30%. The district of Ibrány did not appear in any of the labour market sectors with above average employment rates, so this district was the most unsuccessful in terms of employment. It can be said that in the districts of Záhony, Nagykálló, Kemece and Fehérgyarmat, the main employment provider in terms of those placed after training for job seekers in public employment (Fig. 11).

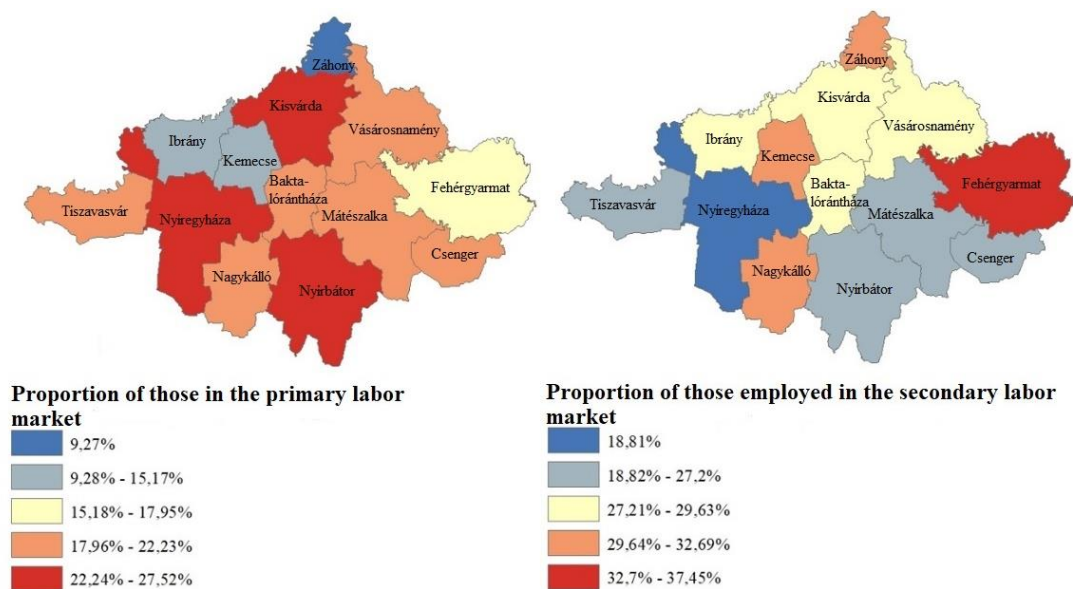


Fig 11. Average (2010–2020), by district, the proportion of job seekers participating in training courses supported by the Szabolcs-Szatmár-Bereg County Government Office in the +primary and secondary labour market. Authors' edition

The two labour market sectors analysed in the hotspot analysis were differently represented in the districts of the county. However, at higher confidence levels (99% and 95%), no spatial concentration correlations could be detected. Hotspots of 90% of that successfully completing adult education in the primary labour market – on average over the last 11 years – were found in two districts (Baktalórántháza and Nagyálló), i.e., these districts had the highest proportions of people in the primary labour market. The district of Kisvárdá (90% coldspot) recorded a value, i.e., the low values were most clustered in this territorial unit. In terms of public employment, i.e., employment in the secondary labour market, one district, Tiszavasvári, developed a coldspot of 95%, which means that this district had the lowest average number of jobs in the secondary labour market over the last 10 years (Fig. 12).

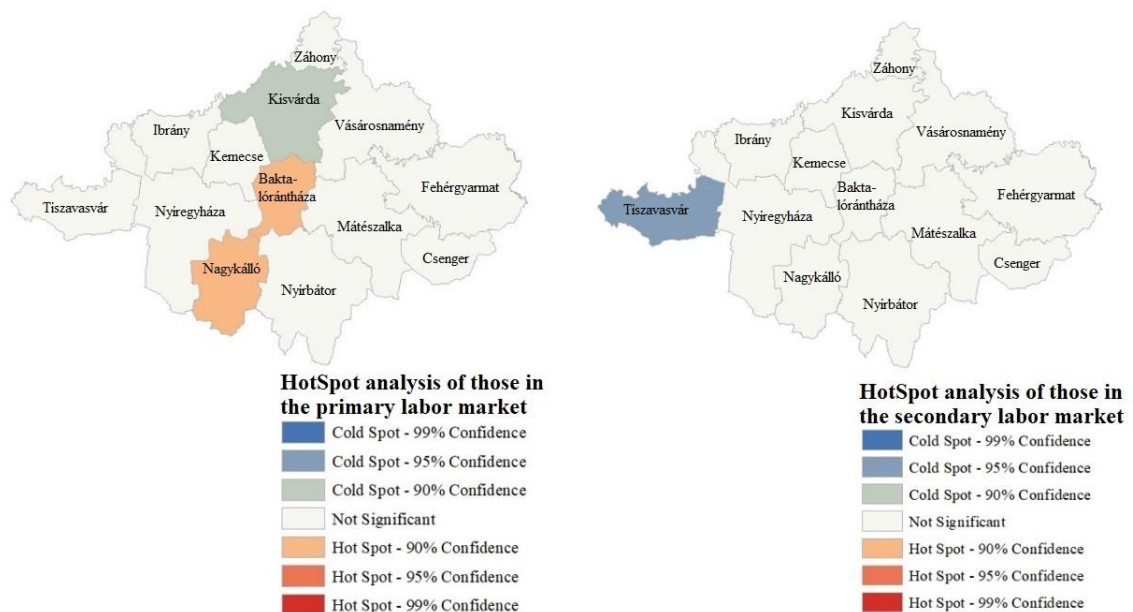


Fig 12. Hotspot analysis of job seekers' employment in the primary and secondary labour market in Szabolcs-Szatmár-Bereg County Government Office supported training courses by district (2010–2020), averaged over the period. Authors' edition

In an autocorrelation study of successful completers of Government Office-sponsored training, Local Moran I statistics are autocorrelated among the county districts located nearby in space. In the spatial autocorrelation study of job seeker training leavers, the Moran index of -0.379574 obtained in the spatial autocorrelation study recorded a negative correlation (z-score = -2.048769, p-value = 0.040485). The z-score and p-value are measures of statistical significance, which typically tell us whether apparent similarity (spatial clustering of high or low values) or dissimilarity (spatial outliers) is more pronounced than we would expect in a random distribution. The critical z-score values when using a 95 percent confidence level are -1.96 and +1.96 standard deviations. Given the z-score of -2.048769 for those who successfully completed the training, there is less than a 5% probability that this scattered pattern is a random result. The measured low negative z-score indicates a statistically significant spatial data outlier. The county seat district has a high-low clustering, i.e., Nyíregyháza district has a significantly higher clustering than the neighbouring districts. Low-high clustering was found in the Tiszavasvár district, i.e., the district had significantly below-average values, while its neighbour had significantly above-average values (Fig. 13).

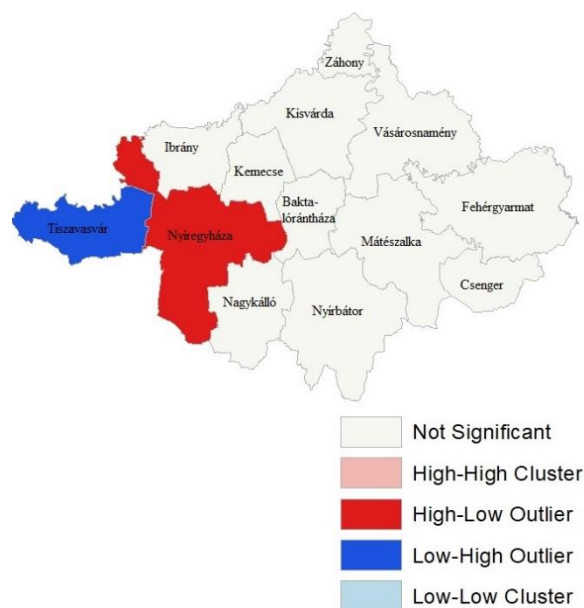


Fig 13. Local Moran I autocorrelation analysis of successful completers of jobseeker training in the districts of Szabolcs-Szatmár-Bereg county (2010–2020). Authors' edition

Pearson's correlation analysis of the variables found that entry into the primary labour market is strongly and inversely related to entry into the secondary labour market ($r = -0.604$, $p = 0.05$). This suggests that the more people return to the primary labour market, the less the role of public employment in absorbing labour reserves. We calculated a moderately strong correlation between the number of trained persons entering the primary labour market and the total number of job seekers in training ($r = 0.597$, $p = 0.05$), suggesting that a higher share of training offers job seekers the opportunity to enter the primary labour market. We detected a significant ($r = 0.887$, $p = 0.01$) result for the correlation between registered job seekers and the resident population, so that the unemployment problem is almost equally present everywhere in the county, regardless of the district. There was not a strong linear relationship between the number of public employees and the resident population ($r = 0.361$; $p = 0.05$), i.e., it differentiated the districts of the county much more than the number of jobseekers.

Given that there was a strong correlation ($r = 0.929$, $p = 0.01$) between the average number of registered job seekers and the total number of job seekers in training, it can be concluded that, regardless of the district, participation in training was a relevant option for job seekers. Finally, a significant result was obtained when examining the correlation between the average number of registered job seekers and their employment in the secondary labour market, as it was found that the number of job seekers placed in public work programmes was inversely proportional ($r = -0.0641$, $p = 0.05$) to the average number of

registered job seekers, which also confirms the importance and long-term relevance of employment in the primary labour market.

The regression analysis revealed that the best position in terms of employment was found in the Nyíregyháza district during the period under study, with a high proportion of adult education participants finding a job in the primary labour market, while the lowest proportion of participants finding a job in the secondary labour market was found in the county (Figure 14). Záhony district was in the worst situation, with the lowest proportion of people in the primary labour market and the highest proportion of people in public employment who successfully completed their training. In terms of employment, the same number of people were able to find a job in both labour market sectors. In the Fehérgyarmat district, the figure is particularly high, with nearly 2.5 times more people in public employment than in the primary labour market. Among the results obtained in the regression analysis, the data presented for the districts of Kemece, Baktalórántháza, Chenger and Nyírbátor gave significant results at the $p = 0.1$ level, for which we can conclude that in these districts, the employment of graduates in the primary labour market influenced their employment in the secondary labour market by approximately 36.5%. For the other districts, the method used did not show significant results.

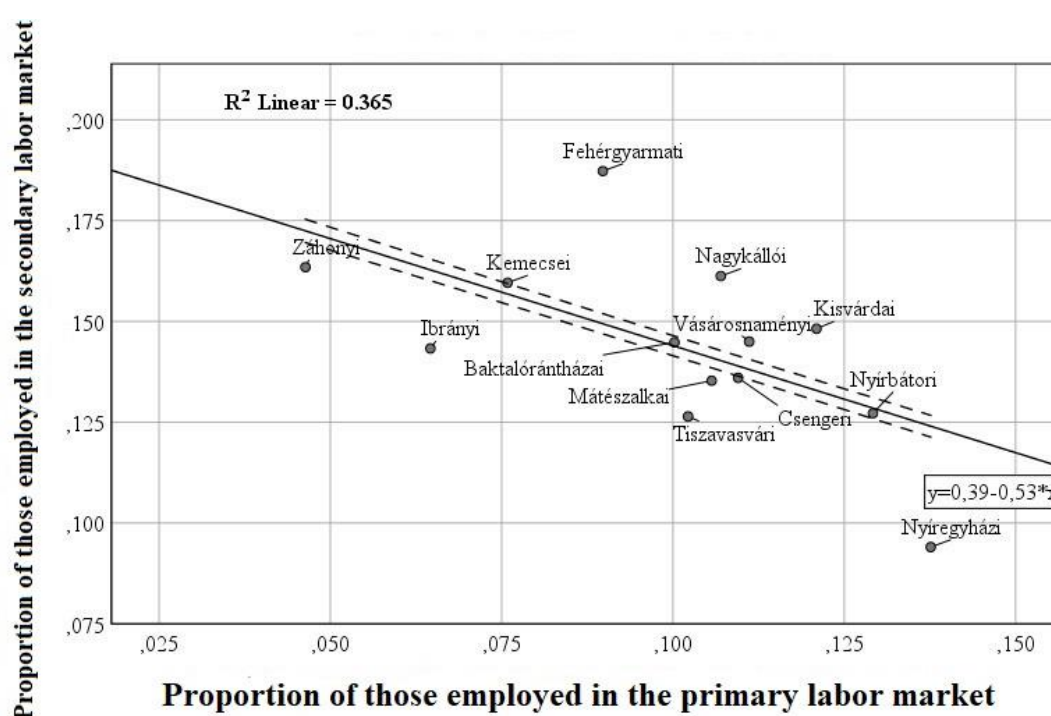


Fig 14. Regression analysis of the share of people in the primary and secondary labour market, averaged over 2010–2020. Authors' edition

The regression analysis between the number of registered job seekers and the number of job seekers in total training gave significant result at $p = 0\%$ confidence level. The statistical method used shows that the average number of registered job seekers determines 86.3% of the number of job seekers in training (Fig. 15). The visual representation of the linear regression clearly shows that the Nyíregyháza district is separated from the other districts of the county, which in our opinion is mainly due to the high population of the district and the clustering of adult education institutions in the county. In terms of the total number of job seekers involved in training by the Government Office, the district of Mátészalka was the district with the second highest number of participants in training among the rural districts. Nyíregyháza district had the lowest proportion (1.5%) of job seekers in training, while Baktalórántháza district had the highest proportion (3.4%). Nyírbátor district had the closest fit to the regression function.

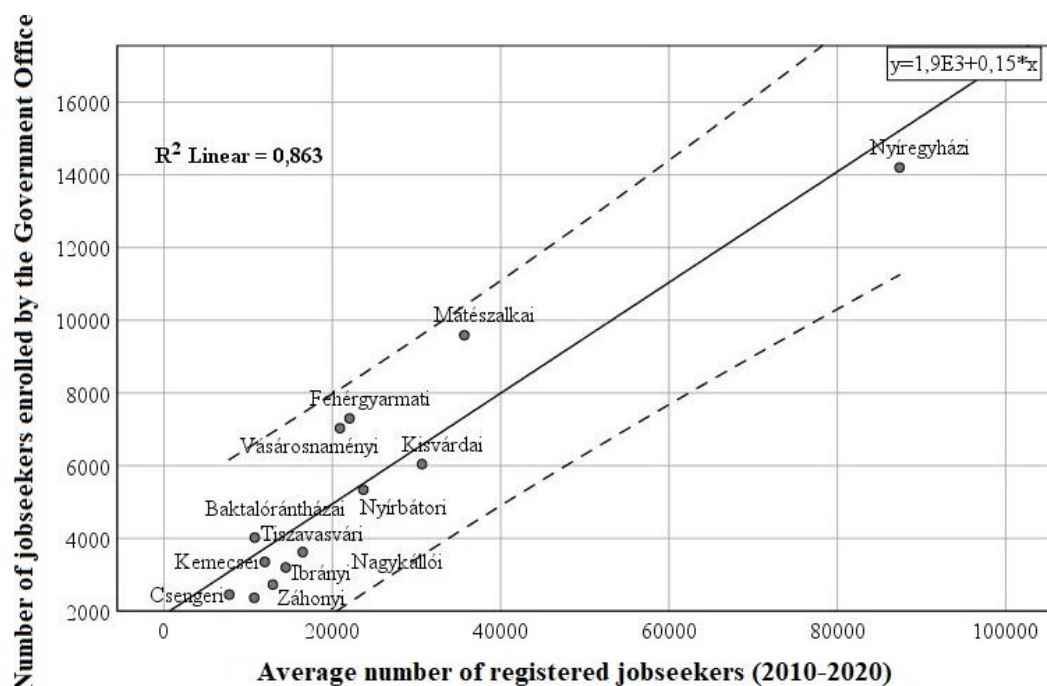


Fig 15. Regression analysis of the average number of registered job seekers averaged over the number of job seekers enrolled by the Government Office (2010–2020). Authors' edition

5. Discussion and limitations

For years, Szabolcs-Szatmár-Bereg county has had the highest number of participants in adult education among rural areas in Hungary, due to the fact that it has the second highest population but also the second lowest GDP per capita data (58.1% of the national average in 2020). For this reason, adult training has a strong focus on inclusion and labour market integration. The participation rate in subsidised adult learning was between 70–90% in period 2010–2020. Within this, training for jobseekers accounted for more than 25% in the period 2014–2017, when public employment became an increasingly important active labour market instrument. Although the number of people in public employment almost halved between 2016 and 2020, 12 of the county's 13 districts will still have a public employment rate of over 5% in 2020, and Fehérgyarmat district will have a rate of over 10%, above the jobseeker rate. The difference between the best (Nyíregyháza) and the worst (Fehérgyarmat) districts of the county is about three times the difference in terms of the combined number of unemployed and public employees (Fig. 16).

Between 2014 and 2020, the combined share of jobseekers and the publicly employed decreased from 18.1% to 13.4% for the county as a whole. However, the generally observed downward trend has been differentiated for the various districts. While new investors have emerged in the more developed regions, public employment has provided a large number of new jobs in the less developed regions. The most developed (Nyíregyháza) and the most underdeveloped (Fehérgyarmat) districts illustrate the different processes (Fig. 17). In the Nyíregyháza district, the public employment rate did not exceed 3.6% in any year, and the number of unemployed decreased even more as the rate declined. Public employment is still very important in the labour market of Fehérgyarmat district, but it can be seen that its declining share has caused the relative indicator of registered jobseekers to rise above 10% again by 2020 after four years. The population with lower education and inexperience in the primary labour market finds it difficult to work permanently, often changing their status among job-seeker, public employee and subsidised training.

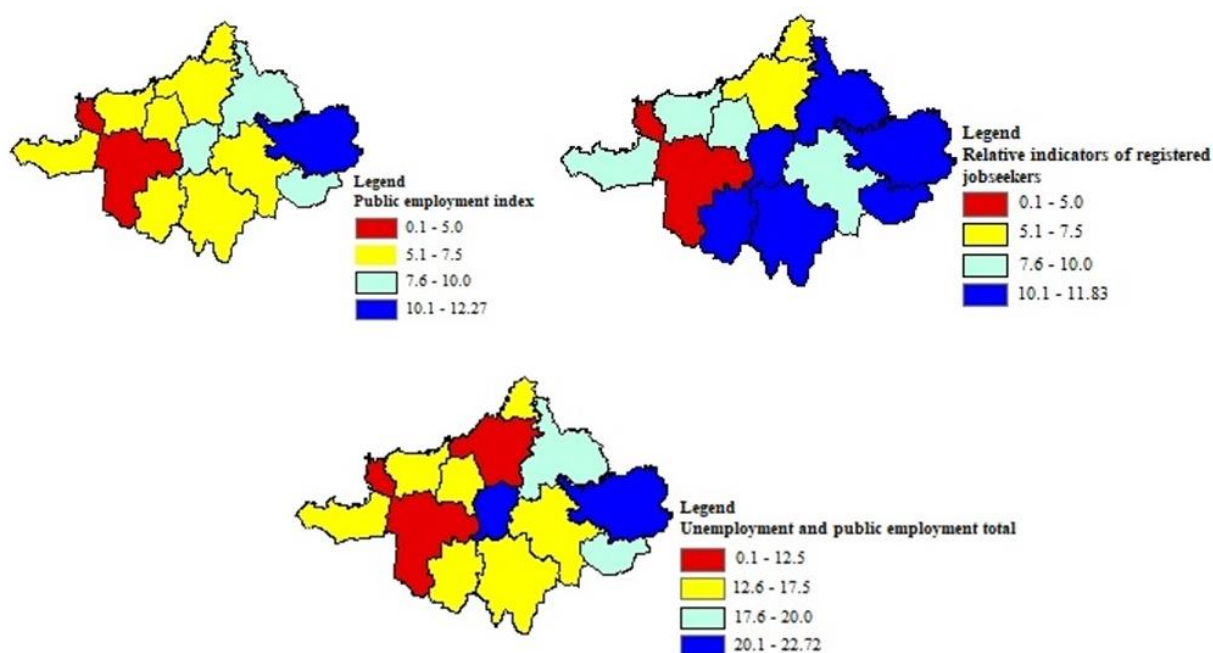


Fig 16. Public employment index and relative indicator of registered jobseekers in the districts of Szabolcs-Szatmár-Bereg county in 2020 (%). Author's edition

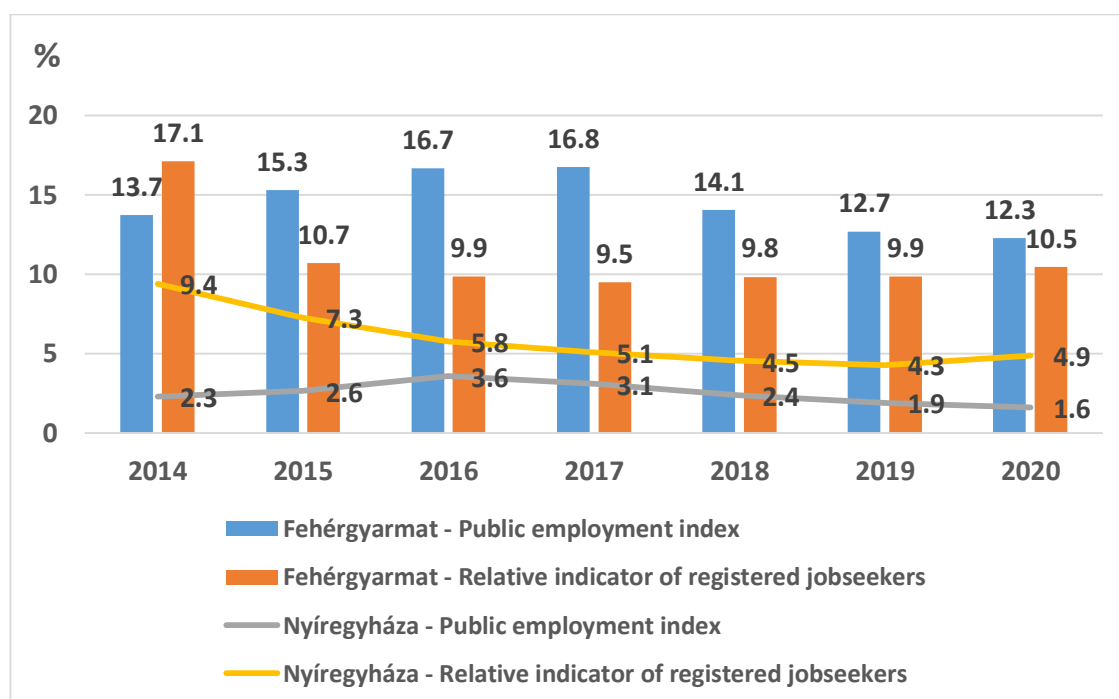


Fig 17. Public employment index and relative indicator of registered jobseekers in Nyíregyháza and Fehérgyarmat districts between 2014 and 2020 (%). Author's edition

The share of long-term jobseekers decreased significantly after 2010, from 29.6% in 2014 to 23.9% in 2020 for those who had been registered as jobseekers for at least 6 months in the last 9 months. This data set is largely influenced by public employment programmes, which have resulted in a share of long-term unemployment below 35% in all districts (Fig. 18). There is a relatively small difference between the more developed and less developed districts according to other indicators. In three districts, the share of long-term jobseekers even increased. However, the proportion of those who are unable to find stable employment in the primary labour market is significantly higher. We have no precise data on this.

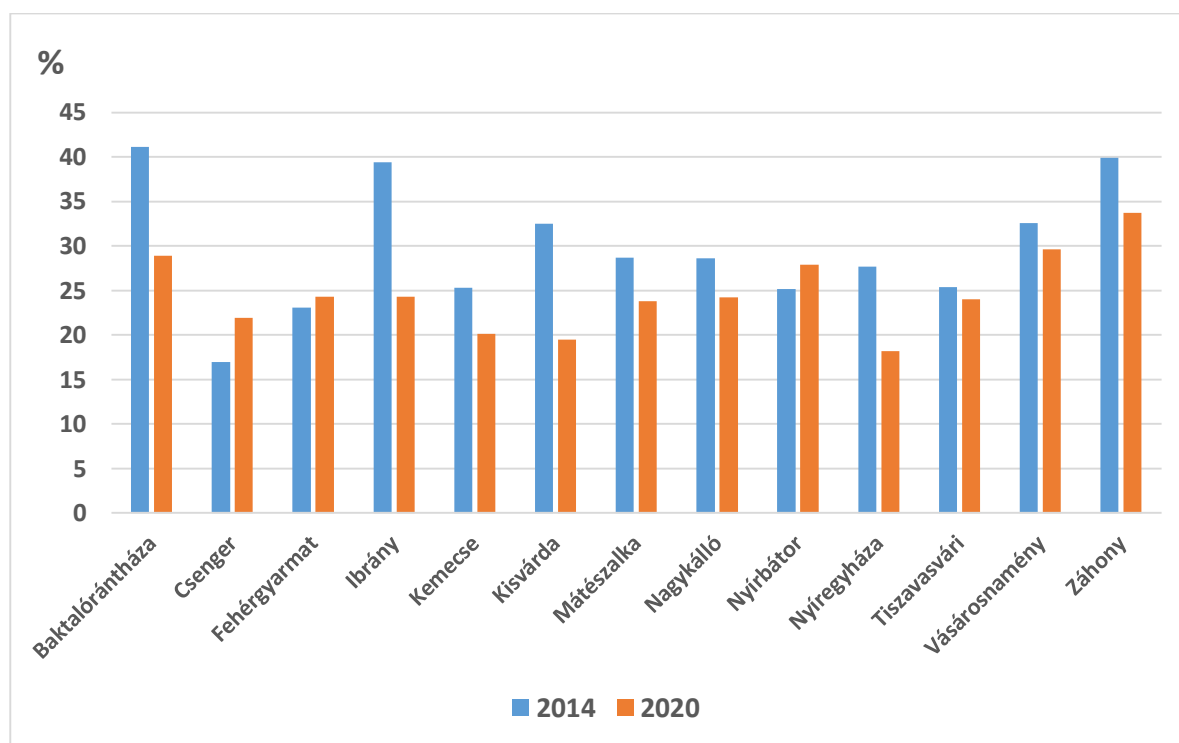


Fig 18. Share of long-term unemployment (%) in the districts of Szabolcs-Szatmár-Bereg county (2014 & 2020). Author's edition

6. Conclusions

During the period under review, the number of job seekers involved in training by the Government Office showed a fluctuating trend, influenced by changes in the economy and Hungarian labour market policy. The highest number of participants was in 2014, when the county's unemployment data showed a downward trend. This is because the Hungarian government continued to attach importance to ensuring opportunities for people living in disadvantaged areas who have not been able to take advantage of positive changes in the labour market at the county level. Later, the importance of adult learning grants declined temporarily, and then the COVID-19 pandemic reduced the activity.

The county of Szabolcs-Szatmár-Bereg had the highest number of participants in adult education in the country, accounting for 5.2% of the national average of adult education over the 11 years. On average, 16.4% of the participants in the training were job seekers in the 11 years studied. The highest rate was in 2014, when the proportion of job seekers exceeded 32%. Since 2014, there has been a steady downward trend in the proportion of job seekers enrolled in the County's training programs, with the proportion just above 2.5% in 2020. The number of participants in adult education has been steadily increasing over the period analysed and the share of job seekers enrolled in training by the Government Office has been steadily decreasing. It can be concluded that the training courses provided by the Government Office do not have a strong impact on the adult education figures for the county.

In the studied territorial unit, the employment in the primary labour market was mostly concentrated in the county seat district and districts with high employment. The county experienced a slight decline in the number of people in the primary labour market sector when public employment was introduced. By the third year after the emergence of public employment, the share of people in the primary labour market had already far exceeded the share of people in the secondary labour market. In two districts located along the national border, public employment emerged as the main employer, as the emergence of public employment has had a negative effect on employment in the primary labour market, while public employment has appeared as the main recruiter in only half of the border districts. This is also due to the fact that these jobs have lower expectations of workers than in the competitive sector and are more accessible.

Based on the Local Moran I autocorrelation study and the statistics of the Ministry of Innovation and Technology, the county seat district had the highest number of job seekers involved in training. Although the cities of Kisvárd and Mátészalka have a population of barely more than 15,000, their economic and regional role in their districts has put them ahead of other rural areas of the county in terms of the number of people enrolled in training. Employment in the primary labour market was also highest in the three districts with the best economic indicators mentioned above. Three districts in peripheral rural areas have low levels of participation in training for jobseekers. And there was also a below-average rate of employment in the primary labour market in these regions. Employment in the secondary labour market was higher but not outstanding in these districts. Public employment was highest in the easternmost district of the country, whose peripheral location is disadvantageous for both investors and commuters. Thus, obtaining a new qualification does not necessarily significantly improve the job prospects of jobseekers in this region, which implies that the Hungarian state needs to launch additional training and employment programmes to avoid adverse changes.

Our future research task will be to identify the types of training that have employment rates above the county average in the area, plus the needs of local entrepreneurs to set up a training plan that will contribute to the reintegration of those who have been excluded from the labour market back into the primary labour market. However, as long as the primary labour market in peripheral regions does not provide the conditions for a larger labour force, it is essential to continue labour market programmes, even if there is a risk that the potential labour force will be trapped in the secondary labour market in the longer term.

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