

**ASPECTS REGARDING THE DEVELOPMENT OF “ADULT TRAINING” PROGRAMS  
FOR JOBSEEKERS IN BORSOD-ABAÚJ-ZEMPLÉN COUNTY**

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**Biographical Note**

**Dávid Hajdú** has been working in various positions such as organizing adult education for 12 years. In 2018, he graduated as a rural development agricultural engineer in Gyöngyös with master's degree. Since 2019, he has been a PhD student of the Doctoral School of Economics and Regional Sciences at the Hungarian University of Agriculture and Life Sciences. His doctoral topic is the study of the effectiveness of trainings for jobseekers in Borsod-Abaúj-Zemplén County, he regularly publishes about this topic. The socio-economic peculiarities experienced during his work played a role in the choice of his doctoral topic.

**Abstract**

Borsod-Abaúj-Zemplén county has high unemployment rates and one of the worst economic indicators in Hungary. The high unemployment rate implies a high number of adult education for jobseekers. Most of the jobseekers trained with the support of the Government Office that's why they concentrated in the county and district centres, i.e. the smaller municipalities do not provide the training that would help them to improve their position in the labour market. The negative demographic trends are affected by the emigration of people due to unemployment, which could be addressed by learning a new marketable profession. In Hungary, those who successfully complete the training can find employment in two labour market sectors, the primary and the secondary labour market (public employment). Employment in the primary labour market started to decline sharply with the emergence of public employment and this downward trend has continued to the present day. Employment in the public works programme has gained ground in the 11 years under review. Employment in the primary labour market was concentrated in Miskolc, the county capital and Tiszaújváros and their agglomerations, in the dominant centres of services and industry. While those

finding work in public employment were mostly present in the northern part of the county, in the area bordering Slovakia.

**Keywords:** employees, unemployment, adult training, public employment, labour market, education

**JEL Classification:** I26, J24, M53

## 1. Introduction

Borsod-Abaúj-Zemplén County is the second largest and second most populous county in Hungary, divided into 15 districts and 358 municipalities. The settlement network of the county is characterised by a high density of settlements and high proportion of small villages. The larger cities tend to have a strong industrial heritage, the sector has played a major role in the employment of the population for decades. After 1990, the county's economic linkages were transformed and to a large extent disintegrated. An extensive rust belt has been created in the county. Cities with more modern industrial technologies and more favourable socio-economic conditions have now succeeded in regenerating. However, seven of the county's 15 districts are still among the most disadvantaged in the country. Some of these are industrial zones that have failed to regenerate. However, the worst situation is in the peripheral rural areas that depend on these industrial areas. Some settlements in these peripheral rural areas have extremely unfavourable development indicators (Baranyi et al., 2003).

Even after the decline of the mining industry, the county still has significant and diverse natural resources. Of the eight World Heritage Sites in Hungary, two are located in the county (the Tokaj Historic Wine Region - cultural and heritage site category, the caves of the Aggtelek Karst (natural category) and one is in the county (Hortobágy National Park: The Puszta - cultural and heritage site category) (Nagy, 2010). Prior to the COVID-19 pandemic, tourism in the county was growing rapidly, with the number of nights spent in commercial accommodation exceeding one million in 2019. In the context of the modernisation of the county, investments in the green economy through the use of renewable energy sources have also played a significant role, but some of these have proved to be short-lived (Balcsók and Koncz, 2009).

Borsod-Abaúj-Zemplén County in Hungary has a low employment rate and high unemployment. In order to reduce the high unemployment rate, the Hungarian government is organising retraining courses to enable jobseekers to reintegrate into the labour market with a new marketable profession after successful completion of the training. In Hungary, jobseekers can find employment in two labour market sectors, the primary and the secondary (public employment) labour

market<sup>1</sup>. The emergence of public employment has had a negative impact on the primary labour market, so government measures have not had the desired effect.

## 2. Literature review

The availability and quality of knowledge, education and training have an impact on the economic growth and competitiveness of a region (Enyedi, 1996; Lengyel, 2012). Therefore, the creation of a knowledge-based society and economy has become a priority today (Taródiné Cseszka, 2017), and investment in human capital has become more valuable (Hajdú and Koncz, 2021), as well as lifelong learning and the development of basic competences (Kálmán, 2012). Related to this, the importance of adult learning has become a high priority and adult learning can fill the gaps in school-based training. Adult education can replace inadequate and marketable knowledge and provide more retraining and upskilling (Benő, 1996; Mayer, 2000; Mócz, 2012; Lakner, 2016), which is important in the context of rapidly changing economic and technological conditions (Krisztián, 2004).

The main objective of the active labour market plan is to provide direct assistance to the long-term unemployed and other social groups missing from the labour market, to help them return to work for a long period of time. The most important types are various training and employment support programmes, public employment and active job search assistance. Their objectives are mainly achieved by cultivating the skills needed to succeed in work, and it is said that participation in a programme can raise the skills of participants to an appropriate level. In terms of content, the most common types of active labour market programmes are training programmes (general training, vocational training, on-the-job training), employment support programmes (employer support, self-employment support), public employment, and active job search assistance (Nyilas, 2016).

The Hungarian government hopes to solve the problems of unemployment and poverty by expanding public employment, and under this thinking public employment has social, employment and political functions (Váradi, 2015). If one does not examine the effects of public employment, it is difficult to judge its success or failure. An impact assessment should take into account the types of

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<sup>1</sup> In Hungary, the primary labour market is the group of people working in the private sector. Those in the secondary labour market are subsidized persons performing public duties in jobs created by the state, who work at specified intervals (4-6-9-12 months). Public employment primarily provides income to those who receive social benefits, including employment replacement support. For a long time, these people do not have the opportunity to enter into another employment relationship due to lack of job opportunities, possibly because of their low level of education, or because they have already dropped out of work experience. The work carried out in the framework of public employment is aimed at activities that improve, among other things, the social, health, educational, cultural, transport situation of the settlements and the usability of public spaces. Public employment provides access to social security, as pensions and job-search benefits, and facilitates entry into and return to the primary labour market. Public employment is not the same as work in the public interest.

public employment programmes in which individuals participate and the types of tasks performed. The treatment of public officials in peripheral areas participating in the START programme differs from the treatment of public officials in small towns with greater economic potential. Among the direct positive impacts on civil servants and their dependants, the most frequently cited by researchers are: fixed income improves the quality of life and subjective well-being of civil servants, they pay more attention to their health. In addition, public employment programmes help to increase the self-sufficiency of municipalities and promote the start-up of social enterprises, using locally produced food to feed local institutions. An important effect is that when public employment has led to a reduction in unemployment rates, communal conflicts have been reduced and cohesion between citizens has increased. In smaller settlements and small villages, efforts are made to involve everyone in public employment, even for short periods (Asztalos Morell, 2014; Szőke, 2015; Váradi, 2016; Koltai, 2018; Kovai, 2019). According to G. Fekete and Lipták, public employment is good for individuals and communities. On the one hand, with good organisation, communities are beautified, built, healthier and more liveable, and professional ethics remain stable. On the other hand, workers benefit by receiving higher wages than the benefits of the work done. They set an example for their children. They can feel that they are useful members of society and thus increase their autonomy. appreciation (G. Fekete and Lipták 2014).

Public employment can play an important role in preventing livelihood crime by compensating the loss of income of those leaving the labour market and reducing welfare expenditure (Csoba, 2010). Public employment can also contribute to reducing the long-term economic and social impacts of high unemployment. It helps to counteract the decline in the value of work, the emergence of moral crises, social exclusion, increased poverty, the stability of income inequality, the emergence of financial dependency or financial fragility, and the gradual decline and reduction of purchasing power, the situation of the internal market (Pirisi, 2018).

Most researchers have reached a consensus on the negative effects of public employment. The sticking effect (i.e. during the period of public employment, participants do not have time to find a job and therefore remain permanently in public employment); Kálmán and Váradi also mentioned the distortionary effect of work (usually even those who can work in the primary labour force based on their own skills and potential are a force (people who find a job in the market) (Kálmán, 2015; Váradi, 2016). In addition, the crowding-out effect (the public employment scheme sucks labour out of the primary labour market) and the substitution effect (where jobs previously held by non-public employees are filled by public employees) should be taken into account. It can be argued that public employment has many advantages and disadvantages, but in the periphery where there are few other job opportunities, it makes people's lives easier because they have a good fixed monthly income and

often better poverty and destitution. (Asztalos Morell, 2014; Kálmán, 2015). Few civil servants can only find work in the primary labour market and are likely to continue working in public office and get trapped there (Váradi, 2010; Koós, 2016).

Around 10% of those who participated in the public works programme returned to the labour market, compared to more than double the rate for those who did not. Self-sufficient backyard public employment and related training maintains peripheral conditions. The transfer of advanced production equipment and related skills can be a durable solution. The current system uses cheap labour to improve competitiveness in the short term, while long-term employment can only be created through public intervention, such as the organisation of cooperatives (Alpek-Tésits, 2014).

Labour market training is completed within a few months, but is inefficient or ineffective in terms of the labour market (Hajdú, 2020). Providing disadvantaged students with a quality education will be more beneficial, allowing them to pursue higher education (Hegedús, 2016). In the long run, providing higher education to people from poor families could be a solution, because higher education usually leads to a higher standard of living, thus accelerating the development of the region and the country (Enyedi, 2010).

Adult learning offers the opportunity to reduce social and economic disadvantage, meet the needs of the labour market and acquire new skills (Halmos, 2005). As training, adult learning is fundamentally aimed not only at acquiring skills, but also at creating attitudes that enable workers to integrate into society (Hall and Stead, 2020).

The labour market has responded to the economic changes brought about by the change of regime with imbalances. In the long term, it became highly segmented with high levels of increasing inactivity, low employment and high unemployment (Szabó and Katonáné Kovács, 2009). The main objectives of Hungary's National Employment Action Plan are to encourage the employment of the unemployed and inactive, to activate young people, to improve the competitiveness of the workforce, to promote lifelong learning, to develop a system of vocational and adult education institutions adapted to economic needs and improving the adaptability of companies (Szabó, 2009; László, 2011).

Labour market imbalances and employment problems are multidisciplinary in nature, and their management involves several disciplines. In Hungary, nearly three quarters of the population live in rural areas, and the biggest problem they face is the lack of decent jobs (Káposzta et al., 2010). A fundamental problem is the poor quality of human resources in rural areas, so the most important thing is to support education and training that meets the needs of labour market demand (Lipták, 2020).

In the Employment Pact entitled Employment and Economic Development Cooperation in Borsod-Abaúj-Zemplén County, the goal was set to implement training and employment programmes

in partnership between the public and economic sectors, and to help disadvantaged workers with reduced working capacity to find employment. The project will give priority to the participation of disadvantaged and inactive people in the labour market, through work experience combined with training. In addition to wage subsidies, it will also support travel for the target group, taking into account the human resource needs of enterprise development. The project is co-financed by the European Social Fund and the Hungarian budget (Lipták, 2021).

Of the 660,000 inhabitants of the county, 154,060 were employed in 2017, of which physical labour was predominant. Most workers were employed in health care, social assistance, manufacturing, and education. Therefore, it can be seen that the state and local government are high employers in the county. The county has one of the highest inactivity rates after the capital and Pest County. Structural problems are revealed by the fact that if we look at the composition of jobseekers by educational level, there is a high proportion of people with at most primary education, followed by people with vocational qualifications (Koncz et al., 2018).

The most important building block for social inclusion is an adequate level of education, which not only focuses on the needs of the labour market but also on the transmission of social norms. The situation in vocational education and training is made more difficult by the fact that the strong industrial production character of the county disappeared after the change of regime, with the result that many industries in the area once known as the Ruhr region of Hungary have disappeared completely (Dobák, 2013).

The Employment Initiative should pay close attention to the fact that more than a quarter of jobseekers have been out of work for more than a year, i.e. they are considered long-term unemployed. Of course, there is a layer in the county who have never worked, having dropped out of public education. A large proportion of jobseekers are difficult to employ, as they are largely unskilled, have little or no primary education, no workplace socialisation, are socially isolated and difficult to mobilise (Hajdú and Koncz, 2020).

### **3. Material and Methods**

As a basis for the secondary research, I reviewed available national and international textbooks and journal articles on the topic. After studying them, I processed the data provided by the Ministry of Innovation and Technology for the county of Borsod-Abaúj-Zemplén, its districts and municipalities. The research covers the period 2010-2020. I reviewed the statistical data of participants in training courses for jobseekers launched by the Government Offices, focusing on the success of employment, distinguishing between primary and secondary labour markets. The collected datasets were processed

and evaluated using Microsoft Office 2016 and IBM SPSS Statistics 25 software packages. For spatial analysis of the calculated statistics and mapping of the results, I used ArcGIS 10.6.1 GIS software.

In order to explore the spatial correlation of the participants in the training courses, I conducted a spatial autocorrelation analysis using Local Moran statistics.

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

where  $n$  is the number of territorial units,  $y_i$  and  $y_j$  are the values of the variable under study in each territorial unit,  $\bar{y}$  is the arithmetic mean of the indicator under study,  $A$  is the number of adjacency links, and the coefficient  $\delta_{ij}$  is 1 if  $i$  and  $j$  are adjacent and 0 otherwise.  $n$  denotes the number of elements (Tóth, 2014). If  $I > -1/n-1$ , the autocorrelation relation is positive, if  $I < -1/n-1$ , the autocorrelation relation is negative. If  $I = -1/n-1$ , there is no autocorrelation relationship between the territorial units (Egri, 2017).

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

$$I_{i,t} = z_{i,t} \sum_i W_{ij} z_{j,t}$$

where  $z_{i,t}$  and  $z_{j,t}$  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). The result classifies the municipalities into four groups:

1. high-high (HH): high value area units for which the neighbourhood also has a high value,
2. high-low (HL): land units with a high value, where the neighbourhood has a low value,
3. low-low (LL): land units with a low value where the neighbourhood also has a low value,
4. low-high (LH): land units with low value where the neighbourhood has a high value (Tóth, 2014; Egri, 2017).

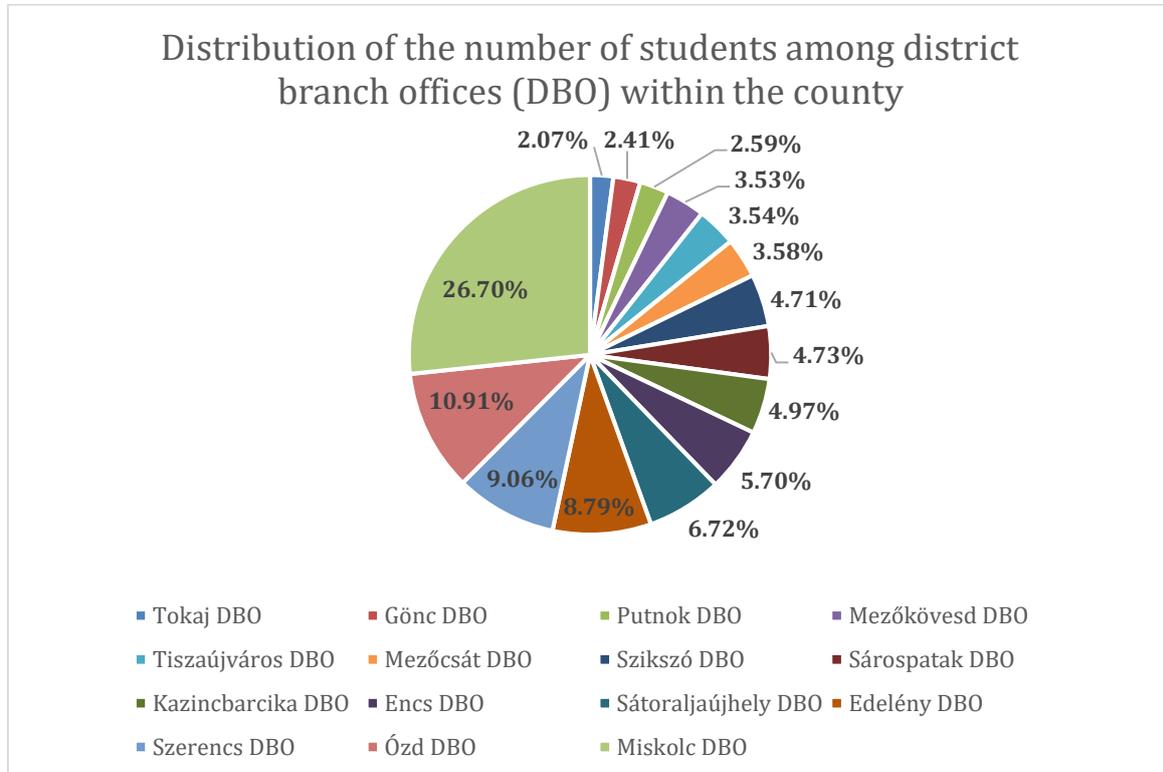
I set the Local Moran significance filter at 0.05 and the number of permutations at 999. I aggregated the number of participants in adult education and training, averaging their employment

rates for the two labour market sectors at LAU 1 and LAU 2 levels. To analyse the aggregates from a spatial perspective, I carried out a hotspot analysis.

#### 4. Results and Discussion

In the period under review, a total of 77,112 unemployed persons were educated in Borsod-Abaúj-Zemplén county. The proportions of jobseekers enrolled in school within the county were not equally distributed (Figure 1). The district of the county seat had the highest number of persons enrolled in training, accounting for more than a quarter of all enrolled persons in the county. In terms of unemployment rates relative to the resident population, districts with high unemployment rates and low employment had the lowest number of jobseekers in training. In percentage terms, the districts of Ózd, Szerencs and Edelény, with the exception of Miskolc, had a share of over 9%. The Sátoraljaújhely branch is unique in the county in that it covers two districts, Cigand and Sátoraljaújhely, and even so it only had a share of almost 7% in the county. The Tokaj district had the smallest number of employees.

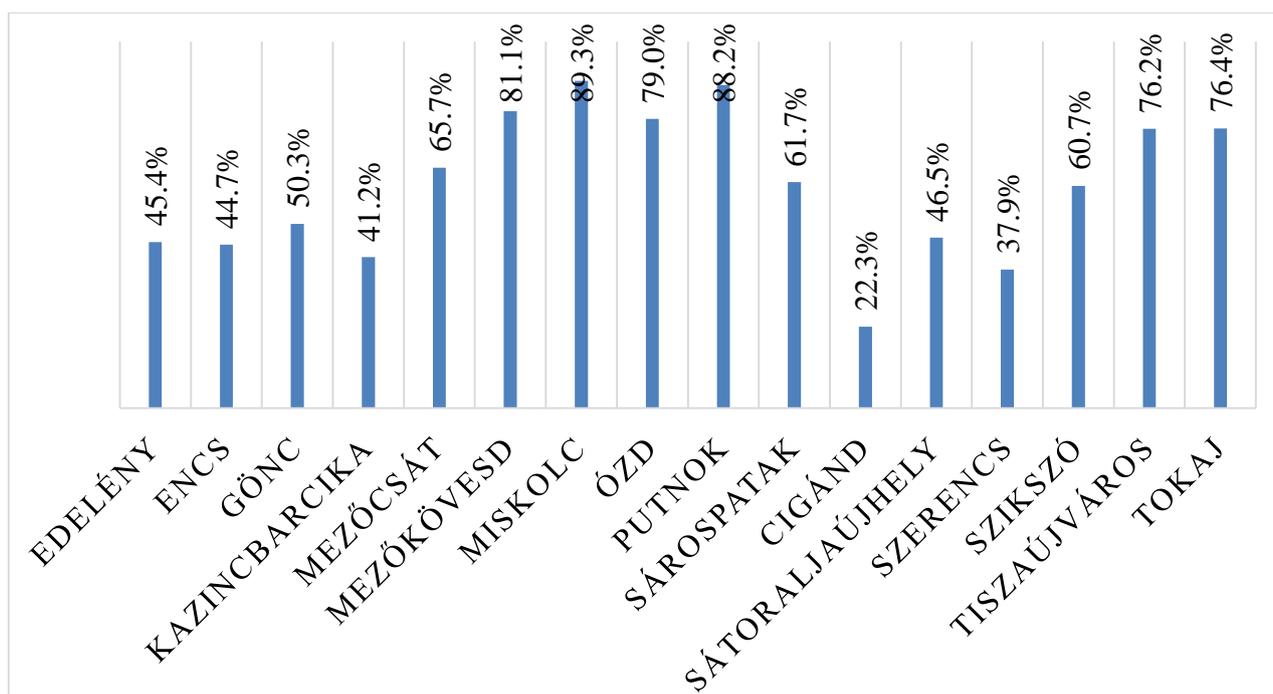
**Figure 1.** Distribution of the number of unemployed persons in training by districts in Borsod-Abaúj-Zemplén county (2010-2020)



**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

In the county, it can be said that the numbers of jobseekers in trainings are concentrated in the more urban municipalities, due to a number of factors. These include the concentration of jobseekers, the existence of training courses with specific training needs and the fact that they are not located in smaller municipalities (Figure 2). The concentration of jobseekers in the county was highest in the period under review, covering almost 90% of the district, accounting for 23.8% of all jobseekers enrolled in the county. The concentration of district centres in the county was 60.4% on average over the 11 years studied. The lowest concentration was in Cigánd, where only 22.3% of the jobseekers trained in the district were attributed to it. On the issue of access to training, jobseekers in districts with a lower concentration of district centres are in the best position, as the location of training starts is spread within those districts, allowing jobseekers to learn new skills in locations closer to their place of residence.

**Figure 2.** Concentration of the number of jobseekers trained in district centres within a district in Borsod-Abaúj-Zemplén county (2010-2020)

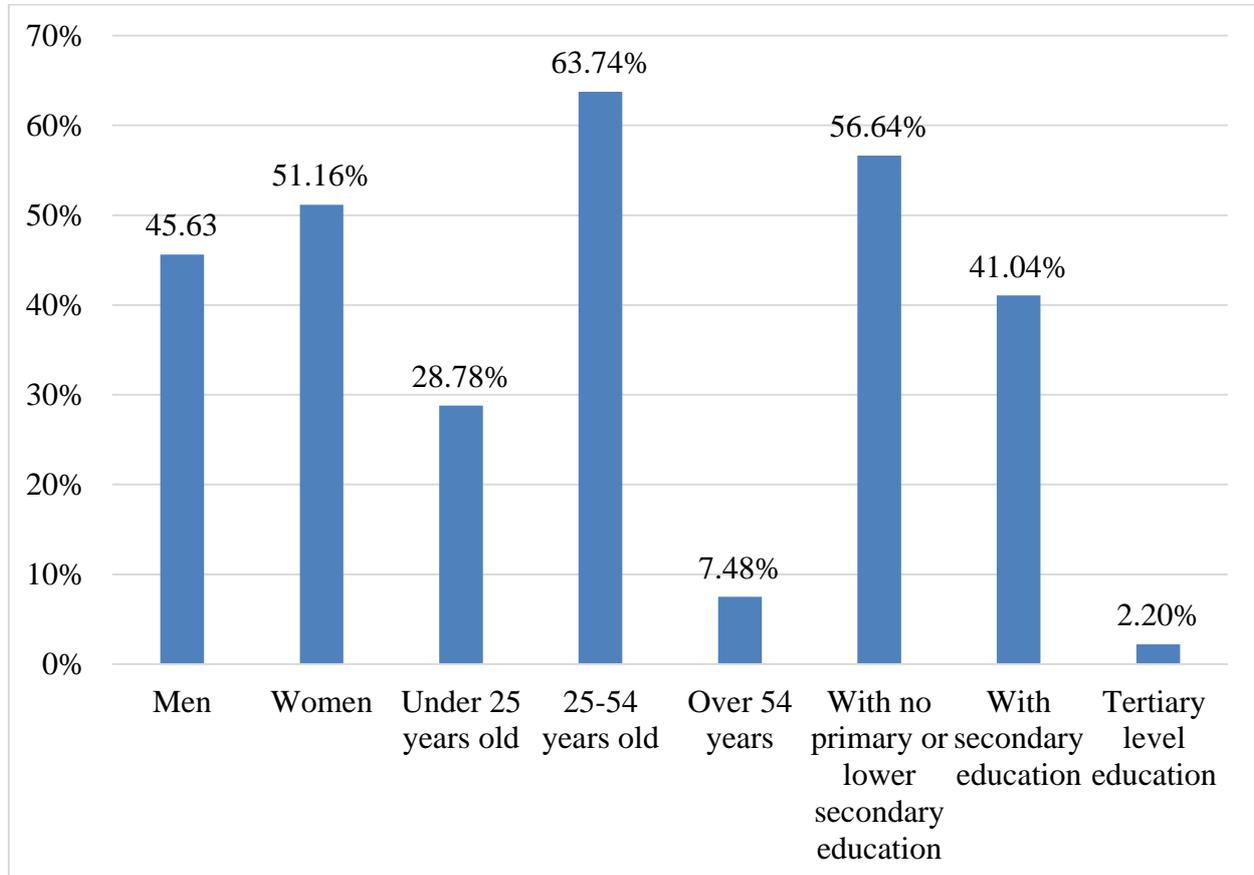


**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

In terms of the gender distribution of jobseekers in education in the county, women have been more involved in all the years studied (Figure 3). In terms of unemployed persons enrolled in adult education supported by the districts, 3 districts had a higher number of men, with the districts of Encsi and Sátoraljaújhely having just over 1%, while the district of Gönc had 11.1% more male jobseekers than women. Of course, in all the age groups studied, Miskolc district had the highest number of qualified jobseekers, as it had the highest number of qualified jobseekers in the county. If we do not

take into account the outstanding figures of the Miskolc district, the Ózd district had the best indicators in Borsod-Abaúj-Zemplén County. The largest age group was the 25-54 cohort. The age group over 54 years old had the lowest participation in training, but in the case of Kazincbarcika district they accounted for more than 9% of all jobseekers involved, which is above the county average, while Putnok district had the lowest proportion of the oldest age group involved (5.2%). When examining the highest level of education, it is striking that jobseekers in the county have primary education or less, i.e. a very low level of education. The data provided by the Ministry of Innovation and Technology, need some explanation, all jobseekers with an educational attainment higher than primary education (up to one grade) are classified as having a secondary education, hence the high proportion of jobseekers with a secondary education. The smallest group was those who had completed tertiary education in the county, which suggests two things, one is that there are few residents with tertiary education in the county by default, and the other is that those with higher education are employed and thus not included in adult education for job seekers in the county.

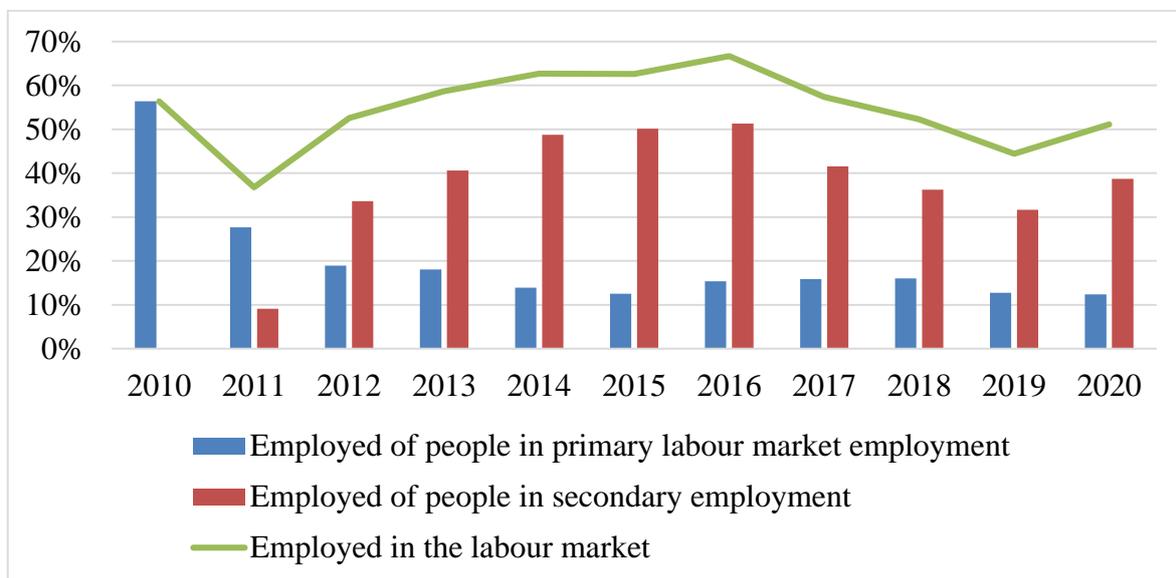
**Figure 3.** Distribution of jobseekers enrolled by the Borsod-Abaúj-Zemplén County Government Office by gender, age group and educational attainment (2010-2020)



**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

The success rate of training for jobseekers is best illustrated by the employment rate of those who successfully complete the training (Figure 4). In Borsod-Abaúj-Zemplén County, as in the rest of the country, the emergence of public employment has had a major impact on the employment rate in the primary labour market. In 2010, before the introduction of the public work programme, the employment rate of those who successfully completed the trainings was 56.4%, which was only in the primary labour market, and then in the following years, with the introduction of public employment (2011), it dropped considerably, but still far exceeded the number of people in public employment. In the following years, there was a massive increase in the number of people in public employment, which by the end of the period under review had fallen slightly, but still more than three times the number in the primary labour market. In relative terms, the highest number of jobseekers was in 2016, when 66.7% of jobseekers in training found a job in the 6 months following completion of training. When looking at the combined employments of the two labour market segments, the 2010 reference value was exceeded in several cases, but it should be noted that a fraction of those trained found a job in the primary labour market.

**Figure 4.** Jobseekers trained by the Government Office of Borsod-Abaúj-Zemplén County: analysis of jobseekers' employment after successful completion of training (2010-2020)

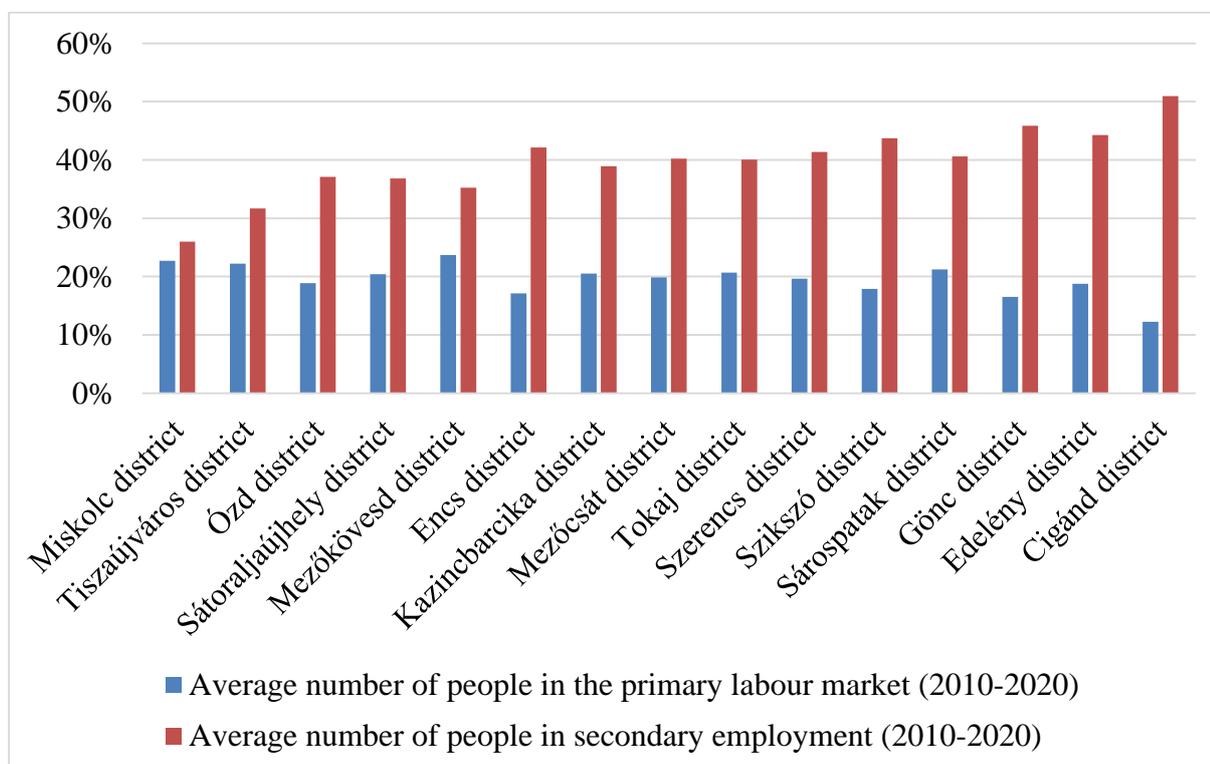


**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

When looking at the employment of jobseekers in training in the county by district, it is striking that for each district, the number of people in public employment far exceeded the number of people in the primary labour market (Figure 5). In terms of the differences between the two labour market sectors, the Miskolc district had the smallest difference (3.29%) in favour of those in the

secondary labour market, but the Miskolc district ranked worst in the county in terms of those in the two labour market sectors combined. The largest difference was observed in the district of Cigánd, where 38.72% more people were in public employment than in the primary labour market. The highest rate of employment in the primary labour market was observed in the district of Mezőkövesd (23.67%), while the highest rate of employment in the public work programme was observed in the district of Cigánd (50.96%), which is also due to the fact that there was no training in Cigánd until 2013, so that the district entered adult education at a time when employment in the primary labour market was already declining and employment in the secondary labour market was gaining ground.

**Figure 5.** Analysis of the employment of jobseekers trained by the Government Office of Borsod-Abaúj-Zemplén County by district after successful completion of training (2010-2020), averaged over the period



**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

Among the districts of the county, the share of people in the primary labour market was high (above 20%) in districts where multinational companies are located or where tourism is prominent. The proportion of people in public employment was high everywhere in the county, but it was highest in rural and border areas, which also have high unemployment rates and low employment rates compared to the county. The county average for employment in the primary labour market was 19.97%, while the average for the secondary labour market was 38.18%. Among the districts, the

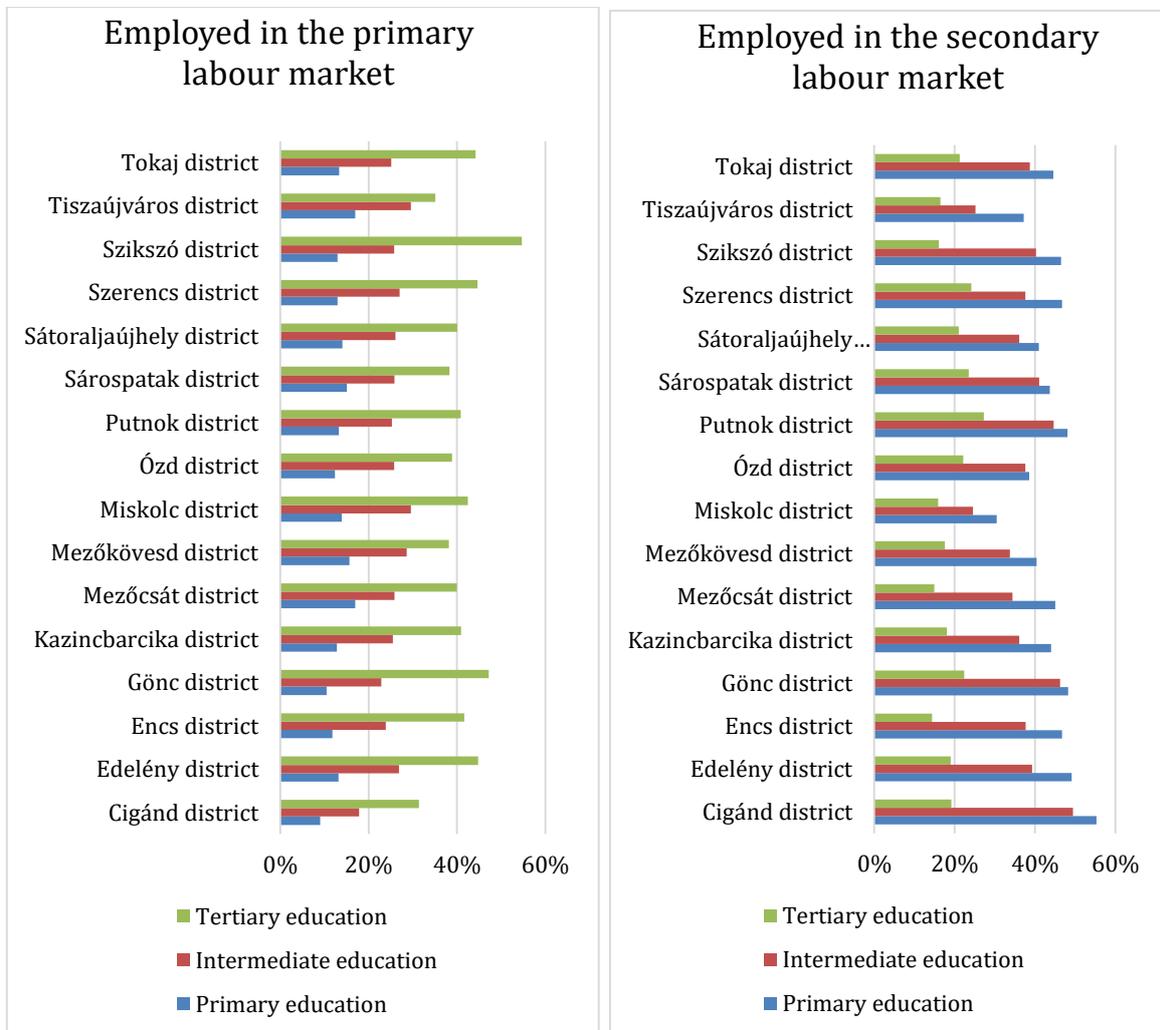
largest decrease in terms of employment in the primary labour market in 2020 was found in the district of Mezőkövesd, with a difference of 56.3%, while the lowest decrease was found in the district of Tokaj (39.3% difference), which was also mainly due to the lower employment rate in 2010. In terms of secondary labour market employment, the Gönc district showed the highest increase, with a 48.4% growth gap by 2020.

Differences in primary and secondary labour market participation by gender, age group and educational attainment are clearly observed between the districts of the county. In terms of employment rates by gender, men were less concentrated in both labour market sectors, with the highest proportion of men in the primary labour market in Mezőkövesd district and the lowest in Cigánd district. In terms of men in public employment, the distribution of districts is completely opposite, with the lowest employment rate in Miskolc district and the highest in Cigánd district. The employment of women is similar in both sectors. In the primary labour market, Mezőkövesd district had the highest rate of finding a job, while Cigánd district was the worst. The lowest proportion of women in the secondary labour market was found in Miskolc district, while the highest proportion was found in Cigánd district.

In terms of the distribution by age groups, Cigánd district had the worst position in the primary labour market for all age groups, while it had the highest proportion of those finding work in the secondary labour market. In the primary labour market, the district of Tiszaújváros had the highest share for the under-25 age group (27.3%); for the 25-54 age cohort, the district of Mezőkövesd (23.8%), while the district of Tiszaújváros (19.9%) also had the highest share for the over-55 age cohort. From the perspective of those in public work programmes, Miskolc district had the lowest rates for all three age groups.

In terms of the distribution of the highest educational attainment in the primary labour market, those with tertiary education were in the best position in all districts (Figure 6). In the primary labour market for all educational attainment groups, the district of Cigand had the lowest proportion of students in the primary labour market, while for those with primary or less education and those with secondary education, the district of Tiszaújváros had the best position, while among those with tertiary education, the district of Szikszó had the highest proportion of students in the primary labour market. For those in the secondary labour market, those with primary education or less had the highest proportion of jobs in each district. The district of Miskolc had the lowest proportion of all education groups, regardless of educational attainment, while the district of Cigánd had the highest proportion of people with primary or lower secondary education and the highest proportion of people with tertiary education compared to those in training, while the district of Putnok had the highest proportion of people with tertiary education.

**Figure 6.** Analysis of jobseekers enrolled by the Government Office of Borsod-Abaúj-Zemplén County by district, grouped by highest educational attainment (2010-2020), averaged over the period

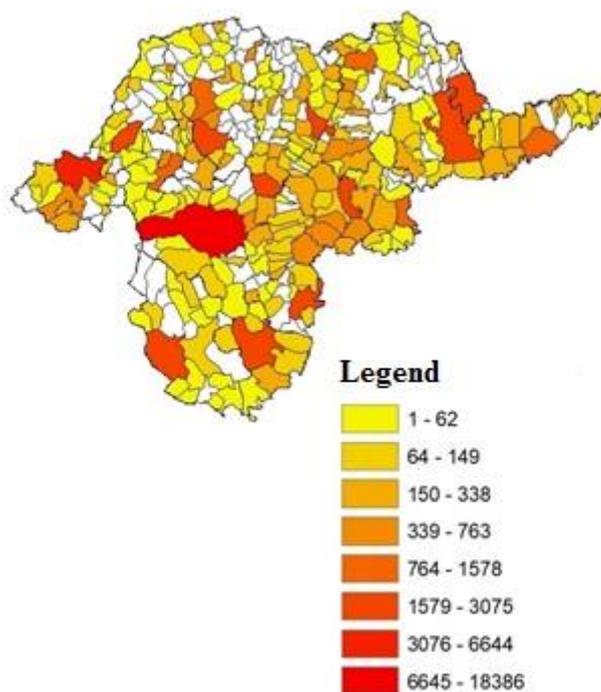


**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

In Borsod-Abaúj-Zemplén County, in the 11 years under review, adult education for jobseekers supported by the Borsod-Abaúj-Zemplén County Government Office was present in a total of 240 of the 358 settlements in the county (67%) (Figure 7). The largest number of trained persons was in Miskolc, the county capital, followed by the district centres with larger populations and higher unemployment rates, such as Ózd, Sárospatak, Sátoraljaújhely, Mezőkövesd and Mezőcsát. Most of those with tertiary education were found in Miskolc and the district centres, while those with primary education or less were proportionally concentrated in smaller settlements. Those with secondary education were clustered in municipalities with larger populations, smaller towns and

district centres. In terms of age, a completely hectic picture emerged, although those aged 55 and over were concentrated in smaller municipalities in rural areas with low population density.

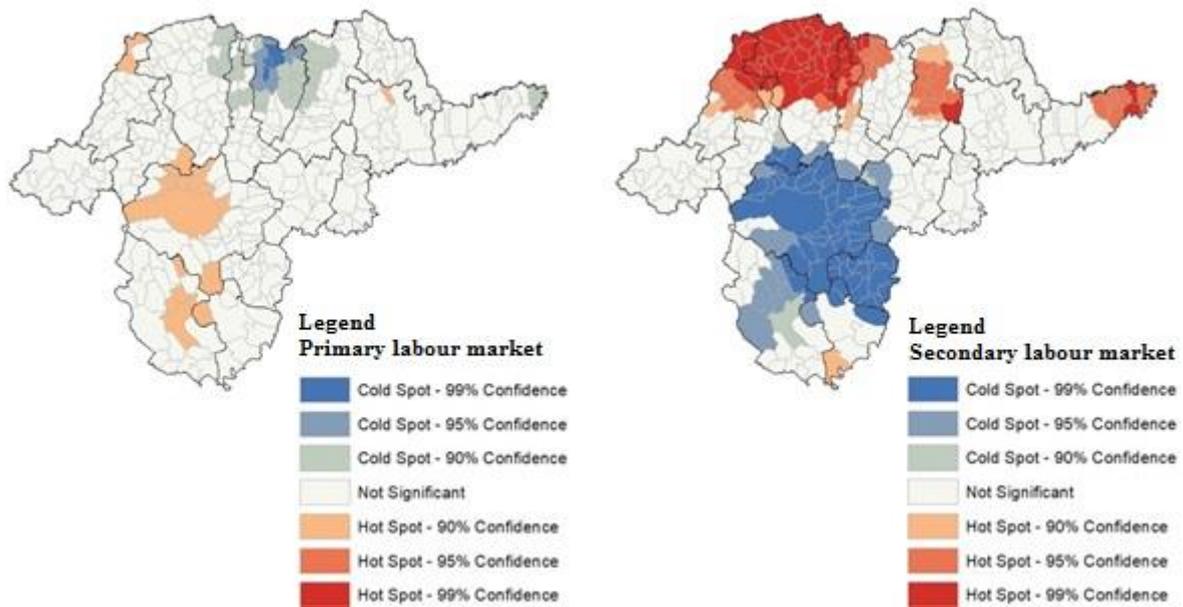
**Figure 7.** Total number of jobseekers enrolled by the Borsod-Abaúj-Zemplén County Government Office (2010-2020)



**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

The HotSpot analyses highlighted the areas where those who successfully completed the training were most likely to find work (Figure 8). Of course, the spatial clustering of those in the primary and secondary labour markets is quite distinct. The primary labour market was mainly concentrated in the county capital and its surrounding municipalities and in some municipalities in the neighbouring districts of Mezőkövesd and Mezőcsát to the south. The northern border areas with Slovakia in the districts of Szikszó, Encs and Gönc were least affected. The secondary labour market was least concentrated in the districts of Miskolc, Tiszaújváros and Mezőkövesd, where the presence of highly employed multinational companies is most prevalent. Public employment was most prevalent in the north, in areas bordering Slovakia. It was most concentrated in the northern border areas of Edelény, Szikszó, Putnok and Encs districts. Public employment also appeared as the main form of employment in the centre of Gönc district and in the peripheral areas of Cigánd district.

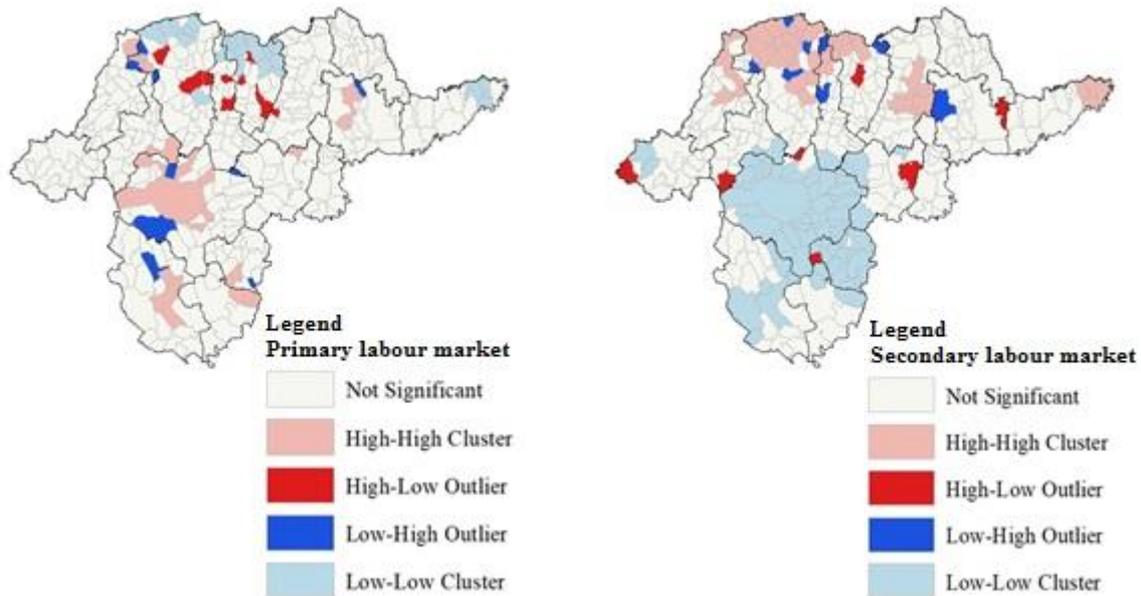
**Figure 8.** Average employment of jobseekers enrolled by the Borsod-Abaúj-Zemplén County Government Office in the primary and secondary labour market (2010-2020)



**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

The Local Moran I statistics are positively autocorrelated in terms of primary and secondary labour market participation in the study area. The Moran index of 0.190752 obtained in the spatial autocorrelation analysis of primary labour market location is positively correlated (z-score= 6.182531, p-value= 0.000000). High-high clusters were formed in Miskolc and its agglomeration, in the southern and northern parts of the county in the district centres and their catchment areas (Figure 9). Low-low clusters were formed in the northern municipalities of the county bordering Slovakia, where employment in the primary labour market was not prevalent. With a z-score of 6.1825312343, there is less than 1% probability that this clustered sample could be the result of random chance. The Moran index of 0.481255 obtained in the spatial autocorrelation study of those in public employment is positively correlated (z-score=15.318435, p-value=0.000000). Low-low clusters were formed in the whole area of the Miskolc and Tiszaújváros districts, where public employment was not present at all, which is also due to the high absorption capacity of multinational firms. High-high clustering was found in the areas of Putnok, Edelény, Szikszó and Encs districts bordering Slovakia, which are characterised by high unemployment and essentially high public employment. Given the z-score of 15.31843500306, there is less than 1% probability that the clustered sample could be the result of random chance.

**Figure 9.** Local Moran I autocorrelation analysis of the location of jobseekers enrolled by the Government Office of Borsod-Abaúj-Zemplén County (2010-2020), averaged over the period



**Source:** own production based on data from the Ministry of Innovation and Technology (2021)

## 5. Conclusion

More than 25% of the jobseekers enrolled in the county were concentrated in the Miskolc district, including the county capital. Basically, it can be said that 60% of the jobseekers enrolled in adult education, i.e. more than 46 thousand people, were enrolled in the district centres. The vast majority of training was provided only in urban municipalities, thus marginalising the frontier and peripheral areas where the need for retraining and retention of residents is greatest.

The majority of participants in the training were female and had low levels of primary education or less, which reinforces the fact that there is a vital need for training in the county, especially for vocational and adult education in primary schools in the 5-6 and 7-8 grades. These courses provide participants with a marketable vocational qualification, and primary school qualifications are an entry requirement for a number of vocational courses. The distribution of participants in training for jobseekers by highest educational attainment shows that the higher the educational attainment of the unemployed, the more likely they are to find a job in both labour market sectors, especially in the primary labour market.

The employment rates in the primary labour market have shown a sharp downward trend with the introduction of public employment, and all districts and municipalities in the county have been

negatively affected in terms of employment rates by the introduction of the public employment programme.

Public employment was concentrated mainly in border and rural areas, with a lower number of staff in city with county status and in the districts of Tiszaújváros and their agglomerations. The presence of multinational companies has led to a significant decrease in the share of participants in public employment in these more favoured areas.

The jobseekers in training were not able to find a large share of their jobs in the primary labour market, with public employment dominating their employment. The inclusion of jobseekers in public employment leads to new training offers, i.e. the jobseeker is only "nominally" included in public employment, but only because of the inclusion in new training offers. The jobseekers cannot leave the student in subsidied training-jobseeker-publicly employed triangle due to the specifics of the system. Training for those in public employment has enrolled more people in the last 5 years than in training for jobseekers, due to calls for applications. This is due to the lack of tender resources and training directly for the labour market.

The main objective of training for jobseekers is to provide them with marketable skills as soon as possible and to enable them to reintegrate into the primary labour market within a short timeframe. Negative demographic trends are affected by unemployment, and thus by job displacement, which means that training should be provided in rural areas with high unemployment (not in district centres). It would be necessary to start training courses with the involvement of local entrepreneurs, and by asking for their opinion, so that the jobseeker can be trained in his/her own business and work processes during practical training, and can thus be more easily integrated into the work processes by the entrepreneur.

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