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One-way ticket from unemployment to entrepreneurship? Evaluation of allowance for self-employment in least developed regions

ABSTRACT: *Entrepreneurship support for the unemployed is one of the most common entrepreneurial policy tools for small start-ups. Usually, this tool is aimed at simultaneously promoting entrepreneurship as well as reducing unemployment. The aim of this paper is to examine in detail the effects of such an instrument in one of the least developed regions of the European Union (EU). At the same time, however, this region has been very effective in reducing the unemployment rate at the time of the research. The paper focuses, in particular, on entrepreneurship survival after support and compares it with maintenance of employment, in general. Our results, based on probit and bivariate probit regression, suggest that gender, age, economic development of the region and the amount of support are among the most important factors affecting the survival of start-ups after support. The differences between more developed and less-developed sub-regions are particularly pronounced for certain socio-economic groups such as women with tertiary education or married couples. We have also illustrated some aspects that artificially prolong the survival of supported entrepreneurship, such as the use of entrepreneurship as a substitute for dependent or part-time work.*

KEYWORDS: least developed regions, sub-regions, entrepreneurship support, unemployment support, survival of start-ups

JEL CODE: J68, L26, R10

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INTRODUCTION

Self-employment support for the unemployed is a specific policy tool that combines two different objectives. On the one hand, it can be seen as a tool to stimulate entrepreneurship and economic development. On the other hand, it is frequently used as part of active labour market policy to reduce unemployment. Combining these two aims into one concept has certain drawbacks and advantages and has been the subject of several previous studies.

Some studies consider such business support to be highly ineffective (Shane, 2009, Acs et al., 2016). The authors recommend focusing on other forms of support and finding innovative business ideas. These views are partly supported by other studies that have pointed, in particular, to the low added value of necessity entrepreneurs (Masuda, 2006; Caliendo and Künn, 2014; Caliendo et al., 2015). Unemployment-based enterprises have on average worse economic performance than other enterprises created by other forms of support (Shane, 2009; Niefert, 2010; Mason and Brown, 2013, Caliendo et al., 2015; Caliendo et al., 2020). They also typically create fewer jobs (Niefert, 2010; Caliendo and Kritikos, 2010). However, a large part of these studies concerned Germany or the developed countries of Western Europe (Dvouletý and Lukeš, 2016). When comparing the survival of enterprises established by the unemployed or others, most studies have found a negative effect of previous unemployment on the survival of subsequent entrepreneurships (Millán et al., 2012; Muñoz Bullón and Cueto, 2011). Therefore, we can expect limited results from this type of programme. However, the empirical results are not clear in this regard and there is no marked difference in survival rates between companies established by the unemployed and other companies (Poschke, 2013; Caliendo et al., 2015). Some studies even show

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higher survival rates of companies established by the unemployed (Dvouletý and Lukeš, 2016). Wolff et al. (2016) found that this kind of subsidy often enables the start of a business for those who would not do that without it.

On the other hand, this tool is considered one of the most effective in terms of meeting the aims of active labour market policy. Several studies have already confirmed positive average treatment effects when using this measure (Caliendo and Künn, 2011; Rodriguez-Planas and Jacob, 2010; Dvouletý and Lukeš, 2016; Behrenz et al., 2016, Sahnoun and Abdennadher, 2018; Caliendo and Künn, 2011; Card et al., 2017).

Our research is focused primarily on so-called entrepreneurship or business survival after the support is finished. This allows us to examine the long-run effect of the support concerning maintaining a created business. However, this support is mainly seen as a tool of labour market policy. The fact that it supports creating a new business is mostly considered as the secondary goal. Hence, the support is creating twofold positive outcomes in the long run. The most desirable result is the case when a supported individual continues with the created business. In our paper, this is called the entrepreneurship survival after the end of the support. The situation when he/she leaves entrepreneurship but remains employed may not be preferred but is still very positive. In our case, this is called maintenance of the employment after the end of the support. We decided to examine both possible positive outcomes and compared the factors affecting both of them.

Much less attention has been paid to the external conditions of the region when examining the factors that influence the success of such instruments, despite the relatively large number of studies in this topic (Caliendo and Künn, 2014). Most of the above-mentioned studies typically focus on individual characteristics (age, gender, education, marital status, length of unemployment) or scheme characteristics (amount of support, length of support). Very few studies account for the possible differences from the region in which support is provided, or whether these regions are very large (e.g. East vs. West Germany variables). In the regional aspect, most studies focus mainly on the unemployment rate as a basic proxy for a region's development stage (Cueto and Mato, 2006).

The paper aims to fill the research gaps in the study of survival factors in business and employment in two dimensions. First, our paper focuses on a least developed region with strong internal disparities. It focuses on a selected underdeveloped region within the new member states where studies of this focus are lacking. The research was carried out within the Banská Bystrica region which is at NUTS (Nomenclature of territorial units for statistics) III level, which is one of the least developed regions of the European Union (EU). In 2011, the region achieved only 37.49% of the EU average gross domestic product (GDP) per capita; this figure increased slightly to 41.7% in 2019. At the same time, it has large internal disparities (e.g. the sub-region of Rimavská Sobota had an unemployment rate of 34.51% in 2011, while the Banská Bystrica sub-region had a rate of only 9.59%). Five of the 20 least developed sub-regions (NUTS IV level) of Slovakia (as defined by a Slovak Republic Government regulation) are located here. This selection of less-developed sub-regions is more comprehensive, thus allowing us to compare the results with studies that use the unemployment rate in the sub-region as a proxy for development. Consequently, we can observe at a detailed level the differences in the factors influencing survival rate within the sub-region. Second, we investigated the support in the sub-region during a period of very strong economic growth, which provides a fairly unique combination of factors. The sub-region had been very successful in economic growth and unemployment reduction over the selected period. The unemployment rate fell from 19.83% in 2011 to 6.69% in 2019.

The remainder of the paper is organised into four sections. The following section discusses the conceptual framework of business support for the unemployed, with a focus on the sub-regional aspect and formulation of the hypothesis. In the third part, we take a closer look at the business start-up support and describe the methodology and data. Next, we detail the survival of the implemented support and use probit regressions to identify the factors influencing it. We also compare the results obtained with other studies that have been conducted under different conditions. We also complement the results with qualitative findings.

Conceptual Framework

Business survival, including that of businesses of the previously unemployed, is mostly associated with economically developed regions that create suitable demand or conditions for innovation (García-Tabuenca et al., 2011; Huggins et al., 2017). However, from a public policy perspective, it is important to support entrepreneurship and job creation where it is needed, especially in least developed regions. However, these regions may have some specificities compared to other regions, which may affect the results achieved by the start-up support provided. The first specificity of these regions is the higher proportion of push motives in the use of support by the unemployed (Caliendo et al., 2015).

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Basically, there are two kinds of motives for starting a business. On the one hand, there are the so-called 'pull' factors, where the objective of becoming self-employed is to explore business opportunities. These entrepreneurs are often referred to as 'opportunity' entrepreneurs. On the other hand, there are also several 'push' factors. People who become self-employed as a result of these factors become self-employed out of necessity (i.e. the necessity entrepreneurs). Thus, in this case, self-employment appears to be the least unattractive of the unattractive options. Obviously, these people may quit their own businesses as soon as they get a job after becoming self-employed (Masuda, 2006; Caliendo and Künn, 2014). The number of such entrepreneurs increases with low levels of regional development (or high unemployment rates) as argued by Masuda (2006). Yet, it is not clear that survival rates in least developed regions should be lower. For example, a study based on data from Germany suggests that the survival rates of supported businesses are higher in disadvantaged areas (Caliendo, and Künn, 2014). The key argument is that the survival rate is higher in these regions, mainly because there is no sufficient alternative for the unemployed in these regions. However, there is also an opposing factor related to the overall higher survival rate of companies in developed and economically growing regions due to greater market opportunities in these regions. This so-called 'prosperity–pull' argument has been empirically supported, for example, in the study by Millán et al. (2012) in the case of Spain. It may also be the case that both affect work simultaneously and, as a result, neither dominates the other. There are also studies either supporting both hypotheses or finding that the effect of the unemployment rate (as a proxy for the development of the region) is statistically insignificant (Caliendo and Künn, 2014; Mayor et al., 2015).

The main argument for greater survival of firms in least developed regions is the lack of other opportunities. Given that our research was conducted in a time of strong economic growth, we can test whether business survival rates will be lower if there are enough new job opportunities in these regions.

Hypothesis 1: We assume significantly lower business survival compared to employment survival in general. This can be even more visible in the less-developed sub-regions compared to more developed ones due to prevalence of push motives.

Another traditional feature of underdeveloped regions is the lower level of education, especially for women. Based on economic theories, the impact of education as a form of human capital accumulation on the survival of companies should be positive. Several previous studies have found evidence of this positive impact of education on business survival (Acs et al., 2007; Niefert, 2010; Millán et al., 2012). However, several empirical studies have already found that start-up incentives from unemployment are more effective for lowless-educated individuals facing limited labour market options (Baumgartner and Caliendo, 2008; Rodriguez-Planas and Jacob, 2010; Caliendo and Künn, 2011; Behrenz et al., 2016). It is assumed that the higher the level of educational attainment, the lower the probability of choosing self-employment, as more labour market opportunities open up to subjects. There is a lack of studies on least developed regions, and the impact of subjects' educational level is uncertain. One study (Belda and Cabrer-Borrás, 2018) finds that education is a determinant of survival for necessity entrepreneurs. On the other hand, it is not so for opportunity entrepreneurs. Since we expect a prevalence of necessary entrepreneurship in less-developed regions and due to economic growth in the examined period we expect a positive effect of education

Hypothesis 2: The level of education will have a positive effect on the survival rate of start-ups as well as on employment.

Another specific feature of least developed regions is the lack of investment capital. At the same time, the sufficiency of input capital is an important factor for the survival of companies, and this factor is also found to be important when analysing the importance of the level of support for the survival of companies established by the unemployed (Mayor, 2015; Escudero, 2018). Access to capital is also likely to have an impact due to lower financial resources (personally and within the family) compared to the non-unemployed population, thereby reducing the amount of personal equity available for business start-ups (Cueto and Mato, 2006).

Hypothesis 3: The total amount of support will have a positive impact on business survival after the support.

However, even least developed regions are often not homogeneous and there may be significant differences. Most previous studies have only analysed the impact of region on business survival at NUTS II or NUTS III level (Caliendo and Künn, 2014; Caliendo, 2016). However, local conditions may also have played a role. Jimenez et al. (2020) reported that university education has a positive impact on business survival, and that this effect is substantially present in municipalities with more than 100,000 inhabitants, but not in smaller cities. Our goal is to take a closer look at the intraregional differences in factors that may affect business survival, so we analyse the factors in hypotheses 2 and 3 also at a sub-regional level.

Regarding the lack of capital, we expect that in less-developed sub-regions, the importance of the level of subsidy will be higher than in more developed sub-regions, as even lesser capital is available in these type of sub-regions. The argument is the same as in hypothesis 3 for the whole region (Cueto and Mato, 2006).

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More complicated issues represent the influence of education level. As argued in hypothesis 2, the level of education should generally have a positive effect on both employment and self-employment. However, no previous studies have found if this effect is higher or lower in less-developed sub-regions and the results are uncertain when looking at more educated or less-educated individuals. We expect that economic growth during the studied period will play an important role. Less-developed regions also have fewer job opportunities, so we expect that people with higher education will find employment sooner. We anticipate that people with higher education will be more likely to find employment, who may also fill positions intended for people with less education due to the lack of opportunities. As previous studies show (Fernández- Serrano and Romero, 2013), in less-developed regions compared to more developed ones, the share of necessity entrepreneurs is higher. These people will probably use the opportunities created by economic growth to move into employment status.

Hypothesis 4: We assume that in less-developed regions compared to more developed ones, the following facts will be found:

- *higher importance of the level of support due to less availability of other capital in these sub-regions and*
- *similar importance of education in the case of employment and business survival due to enough new opportunities in both types of sub-regions.*

DATA AND METHODOLOGY

Our research focuses on self-employment support applied in Slovakia. This type of financial support is defined in § 49 of the Employment Services Act. This financial support can be provided by the Slovak Office of Labour, Social Affairs and the Family (SOLSAF) to a jobseeker to cover part of the costs associated with running a self-employed activity. Certain conditions must be met for an unemployed person to receive support. This support can be granted to a person who has been unemployed for at least 3 months. If the person has ceased or suspended self-employment within 6 months before becoming unemployed, the support can be granted as early as 12 months after being entered into the unemployment register. A business supported by this financial grant must have been in continuous operation for at least 2 or 3 years from the date of signing of the agreement. The exact duration of the business required depends on the year in which the support is granted. The financial grant is provided to partly cover the costs associated with the business activities specified in the business plan and must be used during the agreed period. The total amount of the grant depends on the labour costs, the type of region and sub-region and the average registered unemployment rate in the sub-region where the jobseeker will operate his/her business. The financial grant is divided into two tranches. The first tranche is a maximum of 60% of the total amount. This part is provided to the beneficiary within the first 30 days and must be used within the first year of operation. The remaining part of the grant is granted after the first report on the business operation has been submitted and the grant already granted has been fully used. This part can, therefore, be granted as early as 12 months after the start of the operation. If the entire grant is not used, the beneficiary must repay the unused part. Funds used for ineligible expenditures must also be repaid. In the event of early closure of the business (earlier than agreed in the contract), the beneficiary must reimburse a proportionate part of the aid granted.

The analysis is based on several sources of data provided to us by the SOLSAF database. The sample was restricted to the period from 1 January 2012 to 31 December 2018. The total number of observations was 2,954. One hundred and fifty-eight observations that started before 1st of January have been excluded.

The main part of the analysis focuses on examining business survival or employment after support. Probit and bivariate probit regressions were used to estimate regression coefficients. These methods allow us to examine the effect of the independent variables on the binary dependent variable. Probit regression uses the inverse function of the distribution function to the distribution function of the standard normal distribution. Bivariate probit regression tests whether employment and self-employment are jointly determined. This allows us to account for the implied correlation between the two dependent variables and indirectly capture some unobservables. In bivariate probit, two dependent variables can be used simultaneously in one model, while the set of independent variables is identical. This method has been used in labour market research, for example, by Fendel (2014) and Campos et al. (2014). In our case, we simultaneously examined the impact of selected variables on the employment status 1 year after support and on the self-employment status 2 years after support. The different models have been compared based on pseudo-R^2 statistics. In the first set of regressions, we also computed marginal effects for the regression coefficients, which allows us to easily compare the magnitude of potential effects. In all regression models, the coefficient estimates used were robust in terms of heteroscedasticity and autocorrelation.

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Tab. 1: Description of variables used in the regression analysis

Variables	Description of variables
Employed 1 year after	Follow-up 1 year after the end of support: coded 1 if employed in any job (also self-employed), otherwise as 0
Employed 2 years after	Follow-up 2 years after the end of support: coded 1 if employed in any job (also self-employed), otherwise as 0
Self-employed 1 year after	Follow-up 1 year after the end of support: coded 1 if self-employed, otherwise coded as 0
Self-employed 2 years after	Follow-up 2 years after the end of support: coded 1 if self-employed, otherwise coded as 0
Independent variables	
Gender (male)	Gender of the beneficiary: coded 1 if male, otherwise 0
Age	Age of the beneficiary (years)
Age^2	Squared value of age (years)
Married	Marital status: coded 1 if married, otherwise 0
Unemployment length	Total length of previous unemployment (days)
Education	Achieved education: ordinal variable from 0 to 8 (without formal education = 0, primary education = 1, lower vocational education = 2, secondary vocational education = 3, completed secondary education = 4, higher vocational education = 5, bachelor's degree = 6, master's degree = 7, PhD degree = 8)
Tertiary education	Coded 1 if achieved bachelor's, master's degree or PhD (6–8), otherwise 0
Primary education or lower vocational education	Coded 1 if the highest achieved education is primary or lower vocational education (1–2), otherwise 0 (people without education excluded)
Primary sector (based on NACE 1 and 2)	The sector in which the beneficiary was active before unemployment. Based on the Statistical Classification of Economic Activities in the European Community, coded 1 if the Statistical classification of economic activities (NACE) code is 1 (agriculture, forestry and fishing) or 2 (mining and quarrying), otherwise 0
Industry	The sector in which the beneficiary was active before unemployment. Based on the Statistical Classification of Economic Activities in the European Community, coded 1 if the NACE code is 3, otherwise 0
Less-developed sub-regions	Less-developed sub-regions (according to the Slovak government) coded 1, otherwise coded as 0 (more developed sub-regions)
Same place	Same place of work and living. Coded 1 if the individual is living in the same city or village where his/her job is located, otherwise 0
Amount of financial support	Total amount of financial support from the self-employment support allocated to the beneficiary (in EUR)
Length of support	The length of the period during which the beneficiary is supported and that is also mandatory to carry out self-employment business (in years)
Year of support	Order of the year when the support started to take place during the selected period (year 2012 = 1, year 2013 = 2, year 2014 = 3, …, year 2017 = 6)

Source: Authors.

As dependent variables, we used four variables expressing survival after financial support. These data were collected through follow-up surveys conducted 1 and 2 years after the end of support. Supported people were monitored, and they provided information on whether they were employed or self-employed. The analysis focuses on sub-regions of the Banská Bystrica self-governing region (SK-BC). These sub-regions are classified into two main groups based on the classification used by the Slovak government. The government has specified the 20 least developed sub-regions in Slovakia, which are given special attention and financial support (in accordance with Act No. 336/2015 Coll.). These are sub-regions with an unemployment rate higher than 1.6 times the average registered unemployment rate in the Slovak Republic for at least nine calendar quarters during the examined period. Of these 20 sub-regions, five are located in the Banská Bystrica self-governing region. We included five sub-regions included in this group (Rimavska

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Sobota, Lucenec, Velky Krtis, Poltar and Revuca). These five sub-regions have been labelled as 'less-developed sub-regions' in our analysis. The remaining sub-regions are labelled as a group of 'more developed sub-regions'. All variables used in the analysis are briefly characterised presented in Table 1. Most of the variables used may have some impact on the business survival rate as reported by previous studies (see, e.g. Haapanen and Tervo, 2009; Caliendo and Kritikos, 2010; Caliendo and Künn, 2014; Mayor et al., 2015; Behrenz et al., 2016; Escudero, 2018).

In addition to quantitative analysis, structured interviews were also conducted. This analysis is not used to confirm or reject the presented hypothesis. The aim was rather to complement the knowledge gained about the implementation of the tool that could not be captured by the quantitative analysis, in order to better understand the results from quantitative analysis. In this way, in particular, the motivation to use the tool and the possible effects that could influence or help to interpret the results can be better explained. A total of 29 interviews were conducted. Most of them involved direct contact with the self-employed beneficiaries. Other interviews were conducted with institutions that were in some way involved in the process of obtaining or implementing support. The interviews were conducted in 2020 and were related to the period corresponding to the quantitative analysis

RESULTS

A total of 2954 unemployed persons received support for self-employment in the reporting period. This number represents 21.1% of the total number of new enterprises in the Banská Bystrica region (SK-BC) for the selected period (SBA, 2020b). Here we can observe the relatively high importance of this tool for the business start-ups, especially in less-developed regions. In terms of age structure, approximately 15.48% of the beneficiaries were under 25 years of age, 38.6% were between 25 and 35 years of age, 26.85% were between 35 and 45 years of age, 15.58% were between 45 and 55 years of age and approximately 3.5% were over 55 years of age. The distribution by gender and marital status is shown in Appendix 1. In terms of gender, the majority of the supported subjects were men (59.1%). The proportion of men was significantly higher compared to the whole sample of registered unemployed as well as the proportion of men in the SK-BC region. In addition, the proportion of married persons was also significantly higher in the sample of those supported compared to the whole registered sample as well as the citizens of the SK-BC region.

A significant proportion of the supported individuals had completed secondary education (48.6%) and around 25% had completed tertiary education. Approximately 21% of the beneficiaries were employed as technical and professional staff. This group was also the most represented overall, followed by service and trade workers, who accounted for 17.8%, and skilled workers and craftsmen (17.7%). We also compared further descriptive statistics for selected variable characteristics.

There was also a proportion of people who had moved from employment to unemployment or vice versa in the year between the follow-up surveys considered. However, this proportion was only around 4%. We also ran a control regression without counting these individuals and the key result was the same as when the regressions were run. We also report the characteristics in terms of more developed and less-developed sub-regions (Appendix 2). The only significant difference is in the length of previous unemployment.

Our research focuses on the survival of start-ups and the maintenance of employment of those supported under the self-employment support scheme. The financial support lasts for the first 2–3 years during which the supported person must be self-employed. After this initial period, the situation was again monitored by follow-up questionnaires focusing on the current employment status of the beneficiary. Half a year after the end of support, approximately 88% of men and 86% of women were still employed. However, there was a sharp decline in self-employment in the first year after support. Half a year after support, the proportion of self-employed beneficiaries was 52% for men and approximately 47% for women. Thereafter, this proportion gradually declined. Interviews conducted showed that this sharp decline was mainly attributed to the terms of the support, which require repayment of the funds if the beneficiaries cease business before the agreed time. As a result, the rate of business closures during the support was very low. In our case, the proportion of prematurely terminated support ranged from 0 to 7.11%, depending on the sub-region. However, during the first 6 months after the end of support, almost 50% of the supported entrepreneurs went out of business. Nevertheless, most of the entrepreneurs were still employed after support, as evidenced by the high employment rate. This supports the assumption that in least developed regions, we have a high proportion of necessity entrepreneurs who would quit their businesses and become employed if they find a more suitable alternative. Given the favourable economic conditions at the time of the research in our case, we assume that the vast majority of the 50% in question represent this type of entrepreneur. The decline in self-employment after support was higher in less-developed sub-regions, as can be seen in Figure 1.

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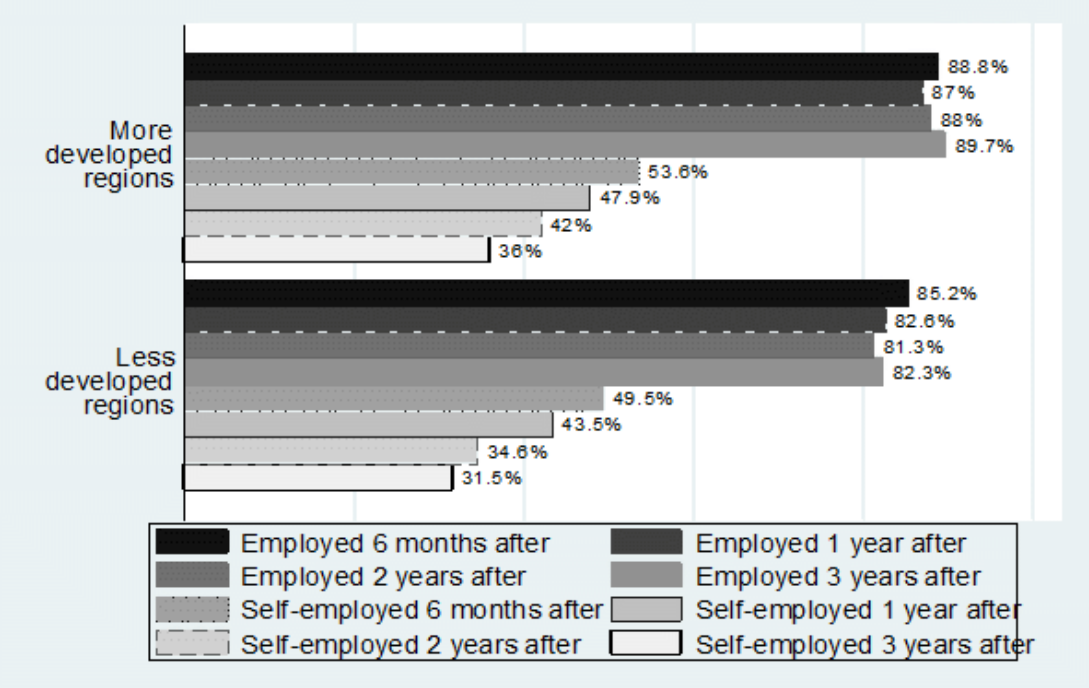
Fig. 1: The proportion of employed and self-employed in the more developed and less-developed sub-regions after the end of support



Consequently, we decided to examine in more detail the structure of the employed and unemployed after the end of support in terms of education, age and type of previous employment. The situation in the less-developed sub-regions was also monitored separately. This allows us to compare the results. The classification by educational attainment is shown in Table 2. In general, the highest proportion of employed people is in the group with a master's degree. However, the majority of people in self-employment are those with secondary vocational education. There are also quite significant differences between the two types of sub-regions. There is a significant difference in self-employment between the more developed and less-developed sub-regions, especially for individuals with secondary education. On the other hand, the results for tertiary education are almost identical for both types of sub-regions.

Another comparison focuses on gender, as well as its combination with marital status and education (Table 3). The proportion of women was generally lower in both employment and self-employment groups. In the less-developed sub-regions, married women were significantly less likely to be self-employed, compared to the more developed ones. Interestingly, women with a university degree had a slightly higher employment rate compared to men with the same educational level in less-developed sub-regions. This difference in favour of university-educated women was even more pronounced in the proportion of self-employed. The results confirm the fact that, especially for women living in less-developed sub-regions, education is a key factor in increasing the likelihood of self-employment and employment in general. In addition to our hypothesis, the low survival rate of entrepreneurship may also be related to the lack of support after start-ups are established.

To understand in detail the possible factors influencing survival and to answer the other two hypotheses, we used regression analysis. A summary of the variables is presented in Table 1 in the section 'Data and methodology'. The results of the models are presented in Tables 4 and 5. In the first set of models, we used probit (Table 4). The most important factors here appear to be gender, age, previous unemployment rate, education and employment among the less-developed sub-regions. In general, models describing self-employment have a slightly lower explanatory power compared to those with employment as a dependent variable. Thus, we can say that the motives for self-employment and the factors influencing its survival are likely to be more complex and difficult to capture with the available independent variables.

On the other hand, the amount of support does not significantly affect the situation of people who take entrepreneurship more as a transition period to future employment. Thus, we confirm our second hypothesis that financial support will have a significant impact on the survival of start-ups. Another factor is education. Based on our results, higher education increases the likelihood of employment after the support and also increases the likelihood of business retention.

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Tab. 2: The status of supported people classified by educational level 2 years after the end of support

		Educational level							
	Sub-region type	**Elementary**	**Secondary vocational**	**Secondary**	**Higher vocational**	**Bachelor's**	**Master's**	**PhD/ doctoral**	**Together**
Employed	More developed	85.2%	82.5%	89.5%	57.1%	71.4%	93%	85.7%	88%
	Less developed	61.5%	70.5%	81.8%	50%	71.4%	93.7%	100%	81.3%
Self-employed	More developed	40.7%	47.4%	44.3%	14.3%	14.3%	36.2%	14.3%	41.9%
	Less developed	23.1%	34.4%	36.7%	0%	14.3%	35%	0%	34.7%

Tab. 3: Status of supported people classified by selected characteristics 2 years after the end of support

	Sub-region type	**Men (%)**	**Women (%)**	**Married men (%)**	**Married women (%)**	**Men with tertiary education (%)**	**Women with tertiary education (%)**	**Women with vocational education or lower (%)**
Employed	More developed	89.8	85.3	87.9	85.5	95.3	86.7	77.8
	Less developed	85.5	74.8	83.6	71.1	90.4	96.5	55.8
Self-employed	More developed	46.5	35	48.3	37.2	36.7	31.1	34.9
	Less developed	38.1	29.2	45.9	31.3	28.7	42.1	19.2

The amount of support as well as the length of the support appear to have a positive effect on self-employment business survival. These findings will also be further discussed with respect to our main aims.

In terms of other variables, men are more likely than women to remain in employment after the end of support. This is valid for both employment and self-employment. This is consistent with the results of other studies. Men also show better survival when using this support (Caliendo et al., 2015), although some studies have not shown these differences. In our case, the proportion of women claiming self-employment support was higher compared to the proportion of self-employed women in the national economy. Thus, push motives are more prevalent among women than among men. This may also be the reason why more women than men leave business prematurely, which brings this proportion only closer to the overall proportion of entrepreneurial men and women in the sub-region.

In our case, age appeared to operate non-linearly in some models. Higher age initially had a somewhat positive effect on self-employment, but it became negative with increasing age. The maximum age for self-employment was around 39 years. In the case of employment, it was slightly less at 37.4 years. This trend is similar to the studies by Block and Sandner (2009) and Haapanen and Tervo (2009); however, the break-even point shifts to between 40 and 50 years of age.

The length of previously recorded unemployment also plays an important role. Those who were on the register for a shorter time before receiving financial support were significantly more likely to be entrepreneurs or employed after the end of their support. This effect was more pronounced in employment than in business. The results are consistent with other studies. The longer the people are unemployed, the more their capital depreciates and the harder it is for them to re-enter any kind of employment (Anderson, 2006; Caliendo, 2016).

According to our results, the fact that an entity is in the primary sector or in the industry does not have a significant impact on business or employment even 2 years after the end of support. However, if the supported people are active in one of the less-developed sub-regions, they are less likely to be employed and self-employed. The effect in the case of employment was evident 2 years after the

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Tab. 4: Analysis of the selected factors affecting the employment and self-employment of supported people 1 and 2 years after the end of support (probit regression)

Dependent variables	Employed (total) (yes = 1, no = 0)		Employed (without self-employed)				Self-employed (yes = 1, no = 0)			
	1 year after the end of support		1 year after the end of support		2 years after the end of support		1 year after the end of support		2 years after the end of support	
	Coef. (z-stat.)	dy/dx	Coef. (z-stat.)	dy/dx	Coef. (z-stat.)	dy/dx	Coef. (z-stat.)	dy/dx	Coef. (z-stat.)	dy/dx
Gender (male = 1)	0.248*** (3.05)	0.049	0.266*** (2.71)	0.082	0.191* (1.91)	0.054	0.116* (1.79)	0.047	0.251*** (3.57)	0.096
Married	-0.224** (-2.48)	-0.044	-0.309*** (-3.03)	-0.095	-0.226** (-2.17)	-0.065	0.038 (0.55)		0.085 (1.12)	
Age	0.067** (2.02)	0.006	-0.034 (-0.63)		-0.005 (-0.83)		0.002 (0.46)		0.107*** (3.74)	0.041
Age²	-0.0009** (-2.08)					-			-0.001*** (-3.63)	
Amount of support (in EUR)	-0.0005 (-0.69)		-0.0001 (-1.70)		-0.001 (-1.00)		0.0002*** (-3.28)	0.00007	0.0002*** (2.82)	0.00006
Unemployment length (in days)	-0.0002*** (-5.04)	-0.00004	-0.0002*** (-4.51)	-0.00007	-0.0002*** (-4.63)	-0.0001	-0.0001* (-1.89)	-0.00003	-0.0002*** (-3.83)	-0.0001
Length of support (in years)t	0.067*** (3.74)	0.0002	0.001**** (3.01)	0.0003	0.001*** (2.87)	0.0003	0.001*** (4.32)	0.0004	0.001*** (4.06)	0.0004
Year of support (start of the support)	0.067 (1.27)		0.111* (1.88)	0.034	0.128* (1.86)	0.036	-0.034 (-0.91)		-0.092* (-1.72)	-0.036
Education **(coded from 1- lowest to 7- highest)**	0.132*** (4.40)	0.025	0.207*** (6.00)	0.0629	0.135*** (3.9)	0.038	-0.053** (-2.55)	-0.022	-0.056** (-2.48)	-0.021
Previously worked in primary sector (NACE 1 and 2)	-0.341 (-1.73)		-0.19 (-0.80)		0.102 (0.39)		-0.272 (-1.46)		-0.167 (-0.89)	
Previously worked in industry (NACE 3)	0.219 (1.63)		0.369** (2.34)	0.1	0.065 (0.42)		-0.029 (-0.31)		-0.021 (-0.21)	
Same place (work and home)	0.113 (0.87)		0.186 (1.20)		0.049 (0.32)		0.064 (0.60)		0.135 (1.18)	
Less-developed sub-regions	-0.077 (-0.87)		-0.005 (-0.05)		-0.15** (-1.39)	-0.038	-0.164** (-2.35)	-0.064	-0.217*** (-2.84)	-0.082
Cons.	-132.65 (-1.29)		-222.80* (-1.88)		-257.4** (-1.86)		67.51 (0.90)		181.5* (1.68)	
Observations	1683		896		894		1683		1484	
Wald chi²	140.5		131.62		97.5		61.73		73.60	
Pseudo R^2	0.106		0.143		0.11		0.026		0.043	

Notes: Values in parentheses are the z-statistics and the marks */**/*** indicate the statistical significance at the 10%/5%/1% level. All models used robust standards errors. The dy/dx data are estimated values of marginal effects calculated at the mean of independent variables. It is calculated as a partial derivative, with respect to x of the prediction function. The derivative is calculated as approximation of the derivative using the following formula: marginal effect of x = $\frac{df}{dx} = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$. If the independent variable x is a dummy variable, the marginal effect used is h = 1 and the slope of the line between f(0) and f(1) is calculated.
Source: Own processing.

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Tab. 5: The results of bivariate probit regression (1 year after support)

	More developed sub-regions		Less-developed sub-regions	
Dependent variables	**Employed 1 year after the end of support**	**Self-employed 1 year after the end of support**	**Employed 1 year after the end of support**	**Self-employed 1 year after the end of support**
	Coef.	**Coef.**	**Coef.**	**Coef.**
Gender (male = 1/female = 0)	0.042	0.108	0.400**	0.231*
Gender × tertiary education (interaction term)	0.447*	0.11	0.127	-0.741***
Tertiary education	0.093	-0.336***	0.438*	0.439**
Married	-0.16	-0.065	-0.143	0.242**
Age	-0.002	0.002	-0.003	0.002
Amount of financial support (EUR)	-0.0001	0.0001**	-0.0003	0.0005***
Unemployment length (days)	-0.0003**	-0.0001	-0.0002***	-0.0001
Length of support (years)	0.001***	0.001***	0.002***	0.0006
Year of support	0.098*	-0.0072*	-0.075	0.033
Previously worked in primary sector (NACE 1 and 2)	-0.238	-0.219	-0.389	-0.333
Previously worked in industry (NACE 3)	0.162	-0.107	0.301	0.057
Cons.	-196.3*	143.09	-151.90	-69.57
Number of observations	1137		552	

*Notes: The table shows coefficient of bivariate probit regression and symbols */**/*** indicate statistical significance at 10%/5%/1% level. All models used robust standards errors.*
Source: Own processing.

end of support. The negative effect on self-employment was present in both the first and second years. This was also reflected in the overall environment in which these entrepreneurs operated.

In the next part, we compared separate models for more developed and less-developed sub-regions. In this case, we used bivariate probit regression to take advantage of the correlation between both dependent variables and jointly determine the effects on both. The results are presented in Table 5. In addition to the independent variables used in the previous regressions, we also used one interaction term. Based on the previous comparison, the combination of gender and education appears to be particularly interesting in terms of self-employment survival in less-developed sub-regions. While men generally have a higher survival of their business after support in both types of sub-regions, the situation is different for the university educated in less-developed sub-regions. This is again confirmed by the results where the interaction term after 2 years in less-developed sub-regions was negative. The amount of financial support again had a positive effect on the survival of a business, but it was still more intense in less-developed sub-regions. The positive effect of its length was highly significant in three of the four models, irrespective of the sub-region.

Looking at our hypothesis 4, one would expect the effect of the amount of financial support to be stronger in less-developed sub-regions, which is confirmed by the results. It turns out that the less-developed a sub-region is, the more important it is to secure sufficient capital in the form of support, as other sources of capital are likely to be severely limited in these sub-regions. At the same time, however, we are facing one of the problems in setting up this support policy. On the one hand, it is important to ensure a sufficient amount of support to increase the chances of businesses surviving; on the other hand, we see a very high proportion of people who have only used this contribution as a transit point to employment when the opportunity arises, especially in times of strong economic growth. The deadweight effect is very high in this case, especially in times of strong economic growth when there are plenty of new jobs in the sub-region. This suggests that in order to be more successful, it would be appropriate to increase the size of the contribution, while at the same time considering more carefully to whom it should be given. This could lead to better outcomes with the same amount of funding. This choice could also include longer periods of preparation for entrepreneurship linked

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Tab. 6: Comparison of survival of supported business and maintenance of employment for selected groups

Status	Sub-regions	Men in construction sector (%)	Men in whole sample (%)
Employed	More developed	83.81	89.80
	Less developed	73.81	85.51
Self-employed	More developed	51.43	46.52
	Less developed	59.52	38.07

to the training of potential entrepreneurs. This could both address the problem of lower readiness of people discussed above and also discourage some people who see this support only as a temporary solution.

The effect of higher education is much less clear in this case. The results show that higher education has a statistically significant positive effect in less-developed sub-regions, both in employment survival as well as entrepreneurship, but it is statistically significant only in employment. In contrast, in more developed sub-regions, this effect is negative and statistically significant for business survival, while in less-developed sub-regions, this trend is positive. There is also a significant difference in survival rates by gender. Although the survival rate is generally higher for men, it is specifically much higher for women with a university degree than for men.

From the interviews, we identified two factors that may influence the results obtained. The first is that people may use the opportunity to start a business only as a substitute for dependent work. Entrepreneurs operating as self-employed have more advantageous tax and social contribution rules in Slovakia. Thus, they often do not have an employment relationship, but formally operate as independent entrepreneurs. According to a representative survey (SBA, 2020b), up to 27% of self-employed persons perform work that can be classified as dependent work. The survey also found that this kind of substitution is most used by men in the construction industry and by women in administrative and service activities. These areas were also confirmed by our survey. While we cannot define the latter case clearly enough based on our data, we took a closer look at the maintenance of self-employment and employment after support for men in construction. The results are shown in Table 6.

The results suggest that men in a given sector are generally less able to get a job. However, they can remain above average in the survival of their entrepreneurship, especially in less-developed sub-regions, which contrasts strongly with developments in other sectors. This fact may be due to higher pressure on the formal self-employment of otherwise typical employees due to several reasons such as lower regulation and more favourable tax/social security regime.

DISCUSSION

The results obtained allow us to make conclusions concerning our four main hypotheses. It is important to mention that our findings are based on available regional data limited to selected Slovak sub-regions. However, we assume that detected trends identify the factors and the effects tend to be similar at least in less-developed Central European regions. Similar research in this region has been relatively recently carried out by Dvoulety (2017) and Dvoletý (2020). Both studies examined the effect of self-employment subsidies on the unemployed in the Czech region. The subsidies are mostly allocated in the regions with higher unemployment rates. The author found a positive relationship between the number of supported individuals and employment rates. The results also suggest that a vast majority of the supported businesses were still officially active 2 years after the allocation of the start-up subsidy. Similarly, Zoellner et al. (2018) argue that a significant majority of supported participants are still self-employed several years after the support provided in Germany. In our case, the situation is, to some extent, specific because the rules of the support force the recipients to remain in the business for two or three consecutive years after the initial payment. This has been considered as the support period in our study. Almost all created businesses remain active in this supported period. However, 2 years after this period, only less than 40% of supported businesses survived.

In general, when compared to previous studies, our numbers are mostly higher in terms of employment retention, but are significantly lower in terms of self-employment survival (see Caliendo, 2016 for a good overview of survival outcomes for both business and employment). We found a business survival rate of 47% in the first post-support year; most studies in the aforementioned overview reached around 60%–70%. However, the employment survival rate (86% overall) is the highest compared to all studies in the aforementioned overview. Thus, we could confirm the first hypothesis. In terms of employment, the high economic growth

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during the period led to a significant increase in job creation in the less-developed sub-region. So, necessity entrepreneurs who are prevalent in less-developed sub-regions have many opportunities to quit and start working as employees. Moreover, the push motives for starting own business seem to be dominant, especially in less-developed sub-regions. Self-employment can be seen by a considerable share of people only as some kind of necessary evil to get financial support. These people may quit their businesses as soon as they can find a more attractive or else risky job.

Our results also show substantial differences between employment and self-employment, as well as between more developed and less-developed sub-regions. The results may suggest that, especially in less-developed sub-regions, people with a lower education remain in business because they have no other employment alternative, compared to people with higher education. This is in line with the findings of some studies where this support was found to be more effective in some cases for people with lower education (Caliendo and Künn, 2011; Rodriguez-Planas and Jacob, 2010; Behrenz et al., 2016). This did not support our hypothesis that education would have a positive effect on business survival. This hypothesis assumed that there is a predominance of necessity entrepreneurs in a sub-region where education is important. Research after 1 year of support may have captured many more opportunities than necessity entrepreneurs, where education may not have played such a role (Belda and Cabrer-Borrás, 2018). Also, employment opportunities are typically more readily available to those with higher education, as confirmed by the positive coefficient of education on job survival. This leads to something of a paradox. Strong economic growth has created many new job opportunities in the sub-region, and by making it easier for people with higher education to find work, they are more likely to move from business to employment. Thus, education as accumulated human capital, consistent with theoretical assumptions, still generally yields higher survival rates, but in this case, paradoxically, leads to a lower business survival rate for these individuals.

In our case, the amount of financial contribution played virtually no role in the survival of employment. However, it seems to be essential in the case of entrepreneurship and its survival after support. It is statistically highly significant and exerts a positive effect. This is likely because sufficient start-up capital is a significant factor in the survival of firms, as other studies suggest (Cueto et al., 2015; Escudero, 2018). Restricted access to capital in most regions can be seen as one of the major obstacles to a successful business. Financial support in the form of input capital into the business can, therefore, increase the survival of companies. This factor is even more important in less-developed sub-regions.

Besides the financial amount, the length of support also appears to be a significant factor. The longer the support period lasts, the higher the likelihood of employment after the end of this period. In the early part of the observed period, the standard length of support was 2 years, then up to 3 years. The length of support is typically shorter in other countries (Behrenz et al., 2016; Mayor et al., 2015). However, it is likely that the longer a supported entity's business has been operating, the more likely is its survival after support. At the same time, these entities will gain work experience for a longer period, making them more likely to be employed.

The differences among results indicate that the positive effect of higher financial support is more intensive in less-developed sub-regions. This can be due to a more severe lack of capital here, as discussed in the text. Furthermore, the effect of education appears to differ according to the level of economic development of the region. Concerning tertiary education, we found a positive relationship between the survival of employment and self-employment in less-developed sub-regions. On the other hand, people with tertiary education tend to quit self-employment more often after the support in developed sub-regions. Moreover, we found also significant gender differences. Especially, men with tertiary education are less likely to stay self-employed in less-developed sub-regions. The relation of education and gender with the effects of support could be examined in future research in more detail.

There is evidence that men in the construction sector are more employed in dependent workers mode while still in entrepreneurship. This can be, to some extent, attributed to the prevalence of bogus self-employment models in Slovakia. This kind of dependent work has a positive impact on entrepreneurship survival and 'artificially' prolongs the survival of their business. This may also be one of the reasons why businesses established in this way do not have worse survival rates than those without support, compared to other indicators such as additional employment or revenues. We assume that this pressure on dependent work is greater in less-developed sub-regions, as there are fewer other options for income security. Therefore, it may 'artificially' increase the proportion of less-educated people who have retained their business in these sub-regions, causing a negative impact of education on business survival. Here, we also see room for further research to determine potential causes in more detail.

Part-time work is the case where financial support is used for reasons other than its original purpose. In our survey, this was mainly applicable to women who had a family. The statistics show that women received support more often than married men and also more often compared to their representation in the whole sample of entrepreneurs. These people were very satisfied with the use of the contribution, even though they often earned less than the full-time minimum monthly wage. They were significantly more satisfied with working in this mode compared to their previous work experiences ('I couldn't afford to have such flexible working

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hours, it's completely different now'; 'it's a completely different feel to work when I do not have to meet deadlines'). They see the support as a kind of substitute for the flexible part-time work they cannot otherwise find. This behaviour may be partly specific to Slovakia, as part-time employment in Slovakia is less than 5%. This is one of the lowest in the EU (the EU average is 21.1%, Eurostat). This situation is even worse in sub-regions with high unemployment, where people are willing to work full-time even for very low wages and employers have no reason to offer part-time work. We believe that this work is in contrast to dependent work, and that many more women with higher education fall into this category than other women. The use of this tool as a way of working part-time presupposes that the woman (or her family) has, thanks to her husband/partner or her social background, sufficient other income to provide for the necessary living costs and is thus not pushed into a full-time job. This is much more common in families with higher education than in other families. This may lead to higher self-employment for women with higher education.

In our research, individuals who received examined support did not have any other unemployment support or benefit since the start of the business. In this respect, this support differs from some other countries where similar studies have been conducted, such as Germany. In the case when supported self-employed continue to benefit from further development of their knowledge and skills through a system of entrepreneurial training and coaching, there is an increase in the survival rate of the subsidised entities (Oberschachtsiek and Scioch, 2015). In addition, in some countries, there is also the possibility of combining financial support for self-employment with an additional subsidy called a 'bridging grant' that supports previously subsidised self-employed who runs into difficulties (Wolff et al., 2016). In Austria, for example, a micro-loan programme is made available, as well as an additional wave of training activities is available for supported people. Another study found that the use of a coach or a consultant positively affected the likelihood of survival (Caliendo, 2016). These options were notably absent in our case, as confirmed by the results of the beneficiary interviews conducted. As one of them mentioned, 'Looking back, when I started my business, I had a completely inadequate idea of what entrepreneurship entailed, but when I needed advice during the running of the business, I didn't know who to turn to'. The unemployed lacked support, particularly in areas important to businesses which did not constitute their core businesses, such as accounting, law or management: 'I am a trained seamstress and I thought I understood this area and knew how to run a business in it. But there is so much administration and economics around the business. This fact surprised me a lot'.

There are also some limitations of our research. Firstly, data available based on the flow-up survey do not include specific fields or occupations of individuals after the support. Hence, we can identify whether the individual is self-employed, employed or unemployed after the support, but we cannot identify the exact field. There may be situations in which, after the end of the support, the recipient of the support will be self-employed in another field or is employed in a job that does not correspond to his qualifications. This is not considered in the study. From the perspective of our research aims, we considered every employment of previously unemployed people after the subsidy as a positive outcome. Our research is primarily focused on the socio-economic factors affecting the situation after the support. However, here, we see room for future research. To provide more specific policy implications related to the exact field of previously supported individuals, more detailed follow-up questionnaire surveys have to be conducted. Another limitation of this study is that we have only indicated certain motives and potential factors based on interviews and we cannot quantify them sufficiently. A more precise identification of the extent of such replacement would help to better assess the success of such support. Furthermore, to examine regional differences on a broader scale, it would also be interesting to compare the situation between different regions in Slovakia and the EU. This comparison can also be the goal of potential further research in this area. Combining all of the dimensions of the examined problem will make it possible to determine the direction of policies in the future more precisely.

CONCLUSIONS AND POLICY IMPLICATIONS

Our research was focused on assessing the importance of financial support for self-employment survival, providing comparison of more developed and less-developed sub-regions at a time of economic growth and declining unemployment. The results show significantly lower business survival rates and, conversely, slightly higher overall levels of job retention, compared to other studies. Almost half of those so supported in this manner transitioned from entrepreneurship to employment. This is important for policymaking because it shows this policy is not very useful for entrepreneurship creation. Rather, low survival of own business can be seen as a failure because the support is focused only on entrepreneurs. However, high employment survival, in general, means that the majority of previously unemployed people find their jobs, even though their businesses fail to continue. We can say that such an instrument fulfils

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its purpose of integrating individuals into the labour market. Our research also suggests that in such regions, a high proportion of necessity entrepreneurs are likely to take advantage of the opportunity to exit the business when suitable employment arises. In these sub-regions, this is happening, especially at a time of economic growth. It is thus important in terms of the provision of support to try to provide such support more selectively and to identify people who have a longer-term entrepreneurial perspective. One such tool could be longer and better training for entrepreneurship, which is currently lacking and which could increase business survival and at the same time discourage those who see it as a last chance to escape unemployment. One reason why this is not the case may be the question of the institutional provision of this support, which is provided by the employment offices. For them, the key goal is that a person should cease to be unemployed and not whether he or she is suitable for entrepreneurship. However, this aspect would require more in-depth additional research. Also, it should be noted that if this tool should only fulfil the role towards maintaining employment, then the meaning of its use would need to be evaluated in the context of efficiency and effectiveness compared to other employment policy tools.

We found that the amount and duration of financial support both positively affect survival after the support. This must be considered when creating the limits of support. Shorter and less-generous financial support can be more financially effective, but will likely lead to less desirable results.

We have also shown that regions, even at NUTS III level, are far from homogeneous in terms of factors influencing survival rates. The level of support appears to be particularly important in the less-developed sub-regions, where access to additional external capital is very limited. The role of education and gender also differs across sub-regions. This points to the need for spatially diversified support. Support is more important for people with lower educational attainment, who might thus have more favourable conditions for accessing it, and these are again more concentrated in less-developed sub-regions. In addition, the overall survival of self-employment is affected by the artificial prolongation of entrepreneurship, where entrepreneurship serves as a substitute for regular employment or flexible work. It seems that these factors again have different effects in more developed and less-developed sub-regions, which opens a new direction for future research.

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APPENDICES

Appendix 1 Characteristics of supported unemployed people – selected variables

	Unemployed people supported by the scheme	Full sample of unemployed people	Self-employed in sub-region (2015)	Inhabitants of sub-region (2015)
Men	59.13%	51.96%	69.2%	48.40%
Women	40.84%	48.02%	30.8%	51.52%
Single	46.26%	52.78%		44.03%
Married	44.02%	34.31%		37.27%
Average age (years)	34.8	35.73	43.8	40.82

SOLSAF = Slovak Office of Labour, Social Affairs and the Family
Sources: Authors based on 1, 2- SOLSAF database, 3- SBA (2020), 4- Statistical Office SR.

Appendix 2 Characteristics of supported job seekers based on selected variables

	All sub-regions				Less developed	More developed
	Mean	Std. dev.	Min.	Max.	Mean	Mean
Age (years)	34.8	9.9	18	61	34.73	34.86
Total length of unemployment (days)	1036.4	973.5	103	7305	943.7	1216.7
Sum of support (EUR)	3971.1	606.8	1899	4645	3856.1	4186.9

SOLSAF = Slovak Office of Labour, Social Affairs and the Family
Source: Authors based on SOLSAF database.