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DIFFERENT EARLY CAREER WORKPLACE EXPERIENCE – DIFFERENT FUTURE EMPLOYMENT CHANCES

EVALUATING THREE PROGRAMS SUPPORTING WORKPLACE INSERTIONS AVAILABLE TO YOUNG JOB SEEKERS IN SLOVAKIA

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ABSTRACT
Different early career workplace experience – different future *employment* chances
(Evaluating three programmes supporting workplace insertions available to young job seekers in Slovakia)
This paper introduces three alternative active labour market policy programmes, available to young registered job seekers in Slovakia during 2011. Using administrative data, we first, explore the moment of selection into each of the programmes, and second, estimate the treatment effects on post participation employment of participants. The main findings are consistent across three different estimators. Our results show that there are substantial differences in the impact of the measures on employment up to three years after the participation. The moment of pipelining young job seekers through one of the programmes is determined by their individual characteristics, such as their skill level, but also the accessibility of the programmes. The more exclusive programme, creaming the more skilled job seekers, is further increasing their employment chances, while an alternative programme results to a significant decline in post participation employment

KEYWORDS
youth unemployment, on the job training, propensity score matching, counterfactual impact evaluation, active labour market policy, youth guarantee

JEL CLASSIFICATION: J08, J68, J24, D04, C21

ABSTRAKT
Rozdielna skúsenosť s pracoviskom v rannom štádiu kariéry – rozdielne budúce šance zamestnať sa
(Vyhodnotenie troch nástrojov aktívnej politiky trhu práce dostupných mladým uchádzačom o zamestnanie na Slovensku)
V tomto texte predstavíme tri nástroje aktívnej politiky trhu práce dostupné mladým uchádzačom o zamestnanie na Slovensku počas roku 2011. S využitím administratívnych údajov, najskôr analyzujeme moment výberu do sledovaných nástrojov; následne sledujeme účinok nástroja na zamestnanosť účastníkov v období po absolvovaní opatrenia. Naše hlavné zistenia sú konzistentné pri aplikácii troch techník odhadu. Výsledky ukazujú, že existujú výrazné rozdiely v účinnosti sledovaných nástrojov na zamestnanosť účastníkov do troch rokov po ukončení ich účasti. Súčasne, moment nasmerovania mladých uchádzačov o zamestnanie do jedného z troch nástrojov je do veľkej miery determinovaný ich individuálnymi znakmi, ale aj dostupnosťou nástrojov v danom región Nástroj s lepšou účinnosťou vyberá účastníkov s vyššími počiatočnými šancami zamestnať sa, zatiaľ čo alternatívne ponúkaný nástroj spôsobuje pokles šancí zamestnať sa v období po absolvovaní opatrenia.

CONTENTS

INTRODUCTION

After the hit of the recent economic crisis in 2008, unemployment rates of younger age cohorts reacted to the worsening labour market situation with higher elasticity than those of the main age group (Verick, 2011). Increased youth unemployment rates in the post-crisis period thus became an urging policy challenge for most of the OECD countries (OECD, 2013).

Practically all countries implementing active labour market policies (ALMP) targeted youth unemployed with specifically designed programmes; even long before the hit of the recent economic crisis and the resulting European Union (EU) wide initiative of the Youth Guarantee (Betcherman et al. 2007). The post-crisis experience stressed the expectations of ALMP potential in fighting the inflated youth unemployment (Martin, 2014). Although, the existing evidence on their effectiveness was ambiguous.

Here we focus on describing a situation when multiple, alternative ALMP programmes with various impact are provided to young registered jobseekers. The decision on which programme to participate can, therefore significantly alter individuals´ future career chances. Using administrative data on registered unemployed and their employment outcomes, we try to show how the decision on one of the three alternative ALMP programmes for young JS is driven more by provider based characteristics than individual-level characteristics. We show that this decision is based to a big extent on the availability of programmes in particular regions and time. Moreover, when individual characteristics of future participants are considered, it is the less skilled and experienced which are being sent to programmes showing the less favourable impact on post-participation employment.

Our aim is to describe a situation when the decision about the selection from available ALMP programmes can significantly contribute to existing inequalities through the differences in their impact on post-participation employment. Participation in a workplace insertion, sheltered by the programmes of Graduate practice (GP) and Voluntary Activation Works (VAW) enhances future employment prospects of participants. In contrast, participation in an alternative programme of Activation Works (AW) adds to the scarring effect of early-career unemployment resulting in worsened employment prospects of participants.

This paper contributes to the existing evidence on the impact of ALMP programmes for youth unemployed[1]. It adds to the limited evidence on the impact of the ALMP in Slovakia[2]. Moreover, it explores the moment of selection into one of the alternative programmes in light of possible implications for social inequity.

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[1] A long list of literature including: (Kluve et al., 2012) (Caliendo et al., 2011) (Card et al., 2015) (Juznik-Rotar, 2012) (Pessoa e Costa and Robin, 2009), and others.
[2] Including: (Lubyová and Van Ours, 1999) (Harvan, 2011) (Mýtna-Kurekova et al., 2013) (Štefánik, 2014) (Štefánik and Karasová, 2016) (Hidas et al., 2016)

The remainder of this paper is structured as follows. A brief overview of the literature on youth unemployment and related policy responses is provided in the following section. Description of youth unemployment trends in Slovakia and the measures under evaluation can be found in the second section. The empirical strategy and data are introduced in the third section. Our main results are described in the fourth section. We conclude in the final, fifth section.

1 YOUTH UNEMPLOYMENT AND RELATED POLICY RESPONSE

The transition from school to the labour market plays a crucial role in shaping individuals´ careers (Elder and Crosnoe, 2002). Especially long-term unemployment in the early stages of career appears to have a "scarring" effect on the next career path (Elwood, 1982), (Schmillen and Umkehrer, 2017). In developed countries, the effect of early-career unemployment on future income seems to be more pronounced than the effect on future employment (Elwood, 1983), (Gregg and Tominey, 2005), (Goldsmith, Veum, and Darity, 1997). Negative employment effect is observable especially in the case of low-skilled individuals (Burgess, Propper, Rees and Shearer, 2003). In a recent empirical study, Schmillen and Umkehrer (2017) estimate a direct effect of early-career unemployment on the chances of being unemployed in the prime age. Furthermore, they claim that the "scarring effect" of youth unemployment is higher for those who have more unemployment experience during their prime age.

Youth unemployment also has immediate negative implications at the social and individual level, such as increased crime rates, obsolescence of recently acquired education, higher pressures on the social policy budgets and other[3].

Negative effects of youth unemployment motivate a quite intensive policy response. Despite that good examples of ALMP are at hand, the overall assessment based on earlier meta-analyses (Card et al. 2010), (Kluve, 2010) shows that these are rather rare. A more recent meta-analysis (Card et al. 2015) points at a relatively lower effect of ALMP, in general, for young as well as older job seekers (JS).

Successful programmes targeting youth unemployed usually rely on providing working experience to recent graduates (Kluve et al., 2012), (Caliendo et al., 2011). Lack of working experience appears to be one of the dominant barriers in finding employment, for recent graduates on post-crisis labour markets with a surplus supply of labour.

In practice, a mix of supporting the collection of working experience in combination with a skill upgrading/training moment presents a quite widespread[4] pattern in the design of youth targeting ALMP programmes. Training ranges from classroom to on-the-job training, with

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[3] For an overview see: (Bell and Blanchflower, 2010)

[4] For example see (Kluve et al., 2012) (Caliendo et al., 2011) for Germany, (Pessoa e Costa and Robin, 2009) for France.

various levels of formalisation. Generally, training programmes[5] appear to have a positive impact on employment probability of participants, which is more pronounced in the medium and long run after the end of the participation (Card et al., 2015). Training programmes targeting youth unemployed appear to yield positive outcomes in terms of employment probabilities for example in Slovenia (Juznik-Rotar, 2012) or France (Pessoa e Costa and Robin, 2009). A mixed approach, providing classroom training together with working experience, showed a positive impact on post-programme employment probability in Germany (Kluve et al., 2012). Caliendo et al. (2011), evaluated seven different German ALMP programmes targeting youth. They report positive employment effects for programmes supporting job-search, short-term as well as further training measures. Strong, statistically significant, positive effects on unsubsidized employment of participants were estimated for subsidised employment type of measures (collection of working experience) combined with a skill upgrading moment. Supporting employment in areas of public interests did not yield employment effects statistically significantly different from zero.

Kvasnicka (2008) evaluates early career involvement in temporary help work in Germany, a programme comparable to the Graduate practice evaluated here. The study finds no effect on future employment outcomes, and thus rejects the hypothesis of this type of early career working experience being some stepping stone for future employment. Nevertheless, participation in temporary help work seems to be operating well in providing access-to-work to unemployed graduates.

From the perspective of unemployed individuals, ALMP programmes thus may offer an attractive option for (re)starting their career paths. This stresses the importance of the factors driving individual decisions towards participation in ALMP programmes. Analysing factors of participation in further education, Boeren and co-authors (2010) identify three levels of potential grouping: individual level, educational institution level and the level of regulating authorities. Our data allow us to distinguish individual-level characteristics from the information about the supply of particular ALMP programmes, which are being provided on a regional basis in time. We analyse the observable determinants of selection into one of the three programmes of interest.

2 YOUTH UNEMPLOYMENT IN SLOVAKIA

Since 2000, Slovakia was experiencing a period of high unemployment in comparison to the rest of the EU. This can be explained by an underperforming production sector[6], combined with relatively stronger inflows into labour force due to demographic waving[7]. Before the hit of the economic crisis in 2008, GDP, as well as employment growth in Slovakia, was one of

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[5] Card and co-authors refer to a wider group of human capital programmes.
[6] As a result of the transformation period from a socialistic central planning to a market economy.
[7] Extensive age cohorts of the late 70s and the 80s entering the productive age after 2000.

the highest among the EU member states. The labour market reaction to the recent economic crisis was one of the most severe in the EU. The country seems to be re-launching this steep growth again after 2014.

Graph 1

Main labour market indicators development (Slovakia vs. EU)
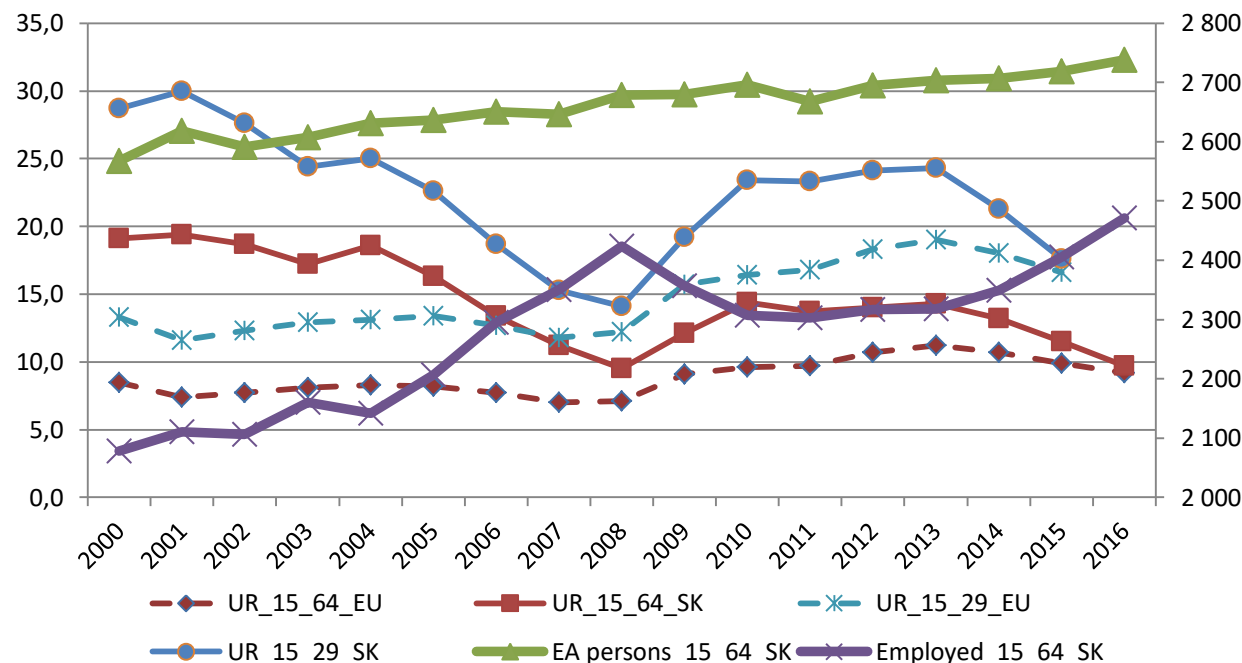
Note: Unemployment rates (UR) in % on the Left axis, Number of persons in 1000s on the Right axis;
EA – economically active, EU – average for the EU member states, SK – average for Slovakia.
UR_15-64_EU – The unemployment rate of 15-64 years old in countries of EU 28 (in %)
UR_15-64_SK – The unemployment rate of 15-64 years old in Slovakia (in %)
UR_15-29_EU – The unemployment rate of 15-29 years old in countries of EU 28 (in %)
UR_15-29_SK – The unemployment rate of 15-29 years old in Slovakia (in %)
EA persons_15-64_SK – The total number of economically active persons in Slovakia (in Thousands)
Employed_15-64_SK – The total number of employed persons in Slovakia (in Thousands)
Source: Eurostat.

In contrast to the turbulent labour market situation, ALMP spending (as a share on GDP or per a registered JS) remains one of the lowest in the EU[8]. Here we are particularly focusing on the period of 2011. During this year there was only one ALMP particularly designed to target youth unemployed – the Graduate Practice. 18.6 percent of youth[9] in registered unemployment during 2011 were participating in this programme. Out of the general[10] ALMP programmes, the Activation Works programme was the most numerous, with 4.6 percent of youth in registered unemployment during 2011 participating in this ALMP programme. On top of that, 1.7 percent of youth in registered unemployment participated in the Voluntary Activation Works; a subprogram offered under the framework of the Activation Works.

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[8] Already low public spending on ALMP in Slovakia was declining during the period of 2010-2015, both in absolute terms as well as the share on GDP. A moderate increase was reported for 2016.
[9] For the sake of the consequent analysis we define youth unemployed as all individuals less than 26 years of age in registered unemployment. This is in line with the eligibility criterion applied in 2011 for the Graduate Practice.
[10] Targeting all individuals in registered unemployment without any age restriction.

Since 2014, more ALMP programmes targeting youth unemployed were introduced under the EU wide initiative of the Youth Guarantee. Most of them combine supported employment with a training moment. One of the programmes aims to assist the transition from youth unemployment to self-employment.

2.1 Description of the measures under evaluation

In practice, the ALMP options available to Slovak youth after registering as in 2011, were limited to the three programmes[11] evaluated here. All three were already in practice for a longer time[12]. Additionally, all the three evaluated programmes share a common design, featuring the moment of workplace insertion to compensate for the lack of workplace experience of young unemployed JS. One of the three is specifically designed for this purpose, as it targets only registered JS less than 26 years of age to provide them with a chance to collect employment experience in a workplace insertion. The other two, Activation Works and Voluntary Activation Works, are provided to all age groups of registered JS, with their main objective being to build or maintain their employability through workplace insertions.

All three programmes are also comparable in terms of intensity and duration of the workplace insertion, as well as remuneration related to participation.

The Graduate Practice (GP) covers workplace insertions of registered jobseekers only if they are under 26 years of age, regardless of their previous work experience nor the period elapsed since their graduation. Participants spend up to 20 hours weekly at one employer during a period of 3 to 6 months. No condition concerning the length of previous unemployment was applied. During 2011 participants receive roughly 190 euro monthly, which is paid by the Slovak public employment service agency (COLSAF[13]), based on two contracts between COLSAF and the JS and COLSAF and the employer. In 2011, GP was relatively accessible to the target group, presenting the most numerous ALPM programme for youth registered job seekers[14]. Previous impact evaluations point to a small, but statistically significant, positive impact on employment of participants (Štefánik et al., 2014), (Hidas et al., 2016).

The Activation Works (AW) programme aims to provide work experience and contact with the workplace to long-term unemployed registered job seekers of all age groups, which are also eligible for the minimum subsistence benefits. A long-term unemployed is a person remaining in registered unemployment for a period longer than 12 months. Additionally, the persons´ household income must be under the threshold for receiving minimum subsistence

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[11] Besides the three selected programmes, one another programme providing formal training to all age groups of registered JS was in practice. The real availability of the programme to young JS in 2011 was negligible, with only apx. 1300 participants from all age groups, out of which apx. half was from the district of the Capital city – Bratislava.

[12] With small adjustments since 2004.

[13] Official name: The Central Office of Labour, Social Affairs and Family of the Slovak Republic.

[14] 18.6 % of JS under 26 years, registered in 2011 entered GP in the period of 2011 – 2014.

benefit[15]. Participants are working for the municipalities, delivering 20 hours weekly for the maximum period of 6 months. Received financial remuneration in comparable to the GP; it is received as an addition to the minimum subsistence benefit. Since 2014, the main minimum subsistence benefit was conditioned by the participation in the AW. This was not the case during the evaluation period when participation in AW was voluntary for minimum subsistence benefits recipients. The organisation of public works differs dramatically from the GP because of the nature of performed duties and the fact that municipalities' efforts in utilising this source of labour are different to private employers´. Available evaluation studies point at a stigmatising effect of participation in AW (Mýtna-Kurekova et al., 2013), (Institute of Ethnology, Slovak Academy of Sciences, 2009), accompanied by a negative impact on post-participation employment (Štefánik et al., 2014) (Hidas et al., 2016). Dependence on the social security scheme, by itself, is often linked with lower employment outcomes and longer unemployment spells (Guzi, 2014).

The Voluntary Activation Works (VAW) is a variation of the AW programme for individuals in registered unemployment regardless of the length of their previous stay in registered unemployment nor their eligibility to receive minimum subsistence benefits. The combination of AW and VAW is not allowed. VAW participants deliver 20 hours weekly for six months to an employer which must be a non-profit organisation. Received financial remuneration is the same as in the case of GP (in 2011 apx. 190 euro monthly). The main difference between AW and VAW is in the organisation of the workplace insertion. While VAW presents an insertion into a regular job within a non-profit organisation, AW insertions are, with only a few exceptions, limited to occasional cleaning tasks for the municipality. Another important difference between AW and VAW can be found among the eligibility criteria. While AW is available only to individuals eligible for the minimum subsistence benefit, this is not considered in the case of VAW.

The three programmes, also, differ in the composition of participants with GP and VAW focusing more (but not exclusively) at registered job seekers with higher education (ISCED 3 and higher). The timing of the participation also differs, with GP and VAW being offered at earlier stages of the unemployment spell. While AW participations mostly start after one year of registered unemployment.

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[15] Minimum subsistence benefit is a social security payment paid by COLSAF to all Slovak citizens living in households with income under the legally defined income threshold. This social transfer is a part of the Social assistance scheme, not conditioned on previous employment.

Graph 2
Density of ALMP participations starts based on the unemployment duration
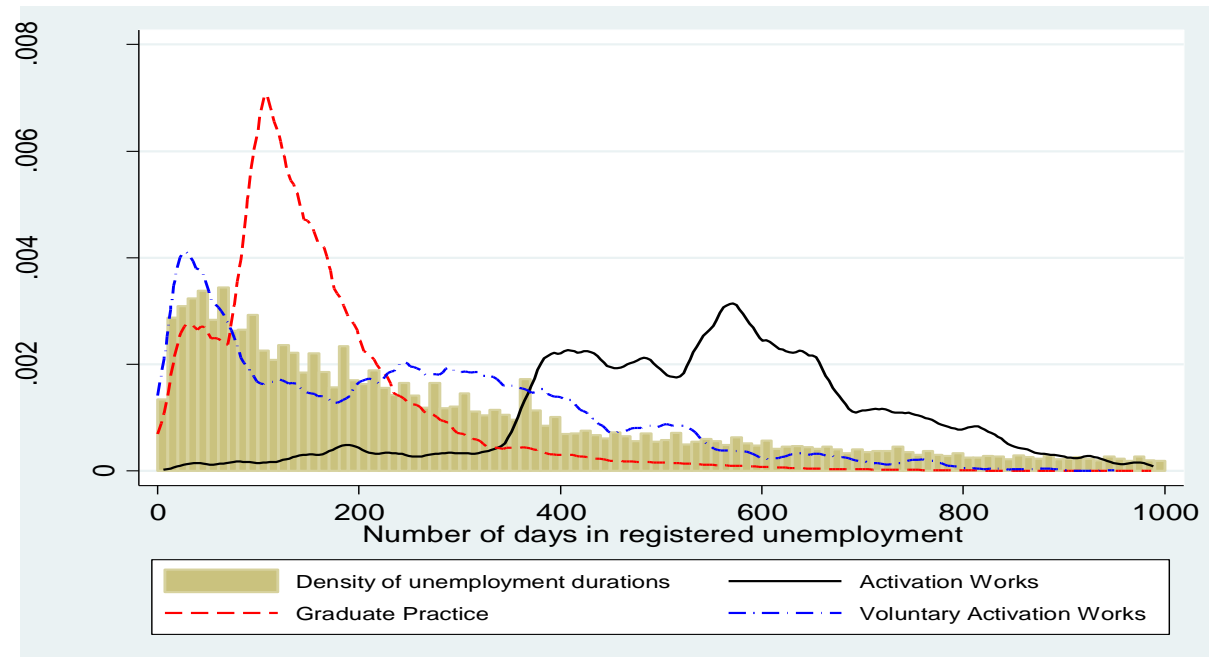
Note: Lines refer to an estimated Kernel relative density of participants based on the time elapsed between the start of their unemployment and entering the programme. Bars display the histogram of the relative density of all unemployment spells of JS under 26, registered during 2011, by the final duration of the unemployment spell in days.
Source: COLSAF Database.

3 DATA AND THE METHODOLOGICAL FRAMEWORK

The ambition of this paper is to explore the selection of registered JS under 26 into available ALMP programmes in Slovakia during 2011. Additionally, we study the differences in the impact these programmes have on employment of participants.

For this purpose, we explore a rich administrative dataset of JS under 26 years of age. We observe all JS registered at the Slovak public employment service – COLSAF[16]. Moreover, our database was linked with the Social Insurance database, with data on all formally employed and self-employed persons in Slovakia.

Our observation period starts in January 2007 and ends in December 2014. For the period of 2007 to 2010, we are able to reconstruct employment as well as unemployment history of our observations. Outcomes are observed during the period of 2011 – 2014.

By participants we understand only one-time participants in one of the programmes of interest during 2011. The entire population of GP, AW and VAW participants from 2011 is observed, with no sampling. Participants with multiple participations during the period of 2007 – 2014,

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[16] Central Office of Labour, Social Affairs and Family of the Slovak Republic – COLSAF.

as well as participants participating in various ALMP programmes during 2007 – 2014 were excluded from the analysis (included in the "Other ALMP" in Table 1). For identifying the contrasting, unbalanced control group[17] of non-participants we use the total eligible population of JS under 26 years of age, being in registered[18] unemployment during 2011.

Table 1

The structure of individuals under 26 in registered unemployment in 2011, based on their ALMP participation

	Freq.	Percent	Unemployment spell in days	
			Mean	Median
Other ALMP[19]	49 727	22.41	537	400
Graduate Practice (GP)	14 300	6.44	514	418
Activation Works (AW)	2 893	1.3	1 186	1 148
Voluntary Activation Works (VAW)	1 084	0.49	590	475
No ALMP programs	153 932	69.36	279	153
Total	221 936	100		

Source: COLSAF Database.

Due to the low accessibility of ALMP programmes to registered JS in Slovakia, we were able to restrict our unbalanced control group[20] to only registered JS not participating in any ALMP programmes during the whole observation period (The "No ALMP programs" group in the Table 1).

Most of the individual characteristics of JS are being reported at the time of registration through the *Application for registration in the database of JS[21]*. On top of that, a comprehensive set of variables is constructed, referring to the employment and unemployment history of JS during the period 2007 to 2010. Here we utilise information about the frequency and duration of employment and unemployment spells, economic sector of employment, earnings, or ALMP participations. The set of covariates is complemented with a list of regional level characteristics, including the accessibility of ALMP programmes in the region counted specifically for each of the monthly inflow cohorts. A complete list of covariates can be found in the Annexe.

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[17] Used in the probit and IV regression analyses as the contrast group and in the matching based estimation of the treatment effects as the unbalanced control group.

[18] In the case of GP and VAW we use the stock of job seekers registered for at least one day during the calendar year 2011. In the case of AW we use the stock of job seekers registered for at least 365 days out of which at least one day was during the calendar year 2011.

[19] Other ALMP participations are participation in other ALMP programmes and participation in the three evaluated programmes (GP, AW and VAW) outside of year 2011, but within the observation period of 2007-2014.

[20] Used in the probit and IV regression analyses as the contrast group and in the matching based estimation of the treatment effects as the unbalanced control group.

[21] When applicable the attributes were updated with information from a more recent unemployment registration or based on elapsed time.

3.1 Selection into ALMP programmes for youth unemployed

To analyse the determinants of participation in one of the three ALMP programmes, we explore the differences in the probability of participation. In line with Boeren and co-authors (2010) we differentiate between determinants of participation related to the provider and those observable at the level of individuals. Therefore, we estimate models of the probability to participate in each of the programmes and identify significant associations between individual characteristics of eligible young registered JS and indicators referring to the accessibility of the programmes aggregated in time at the regional level. Three equations are estimated on the probability of participation (I) in each of the programmes *(p)* conditional on the vector of *(n)* observable characteristics (X).

$$\Pr(I_p = 1 \mid X_n) \tag{1}$$

Explanatory variables, referring to the determinants of participation are included in blocks. The first block only includes variables of the availability of the programme to a particular monthly inflow cohort in a particular region. The variables of availability capture the share of JS under 26 participating in the programme, on the total number of JS under 26, registering in the same month within the same regional COLSAF office. The construction of these variables is as follows:

$$AV_p = \frac{\text{NP}_{(p,m,r)}}{N_{(m,r)}} \tag{2}$$

Where: AV_p is the variable of the availability of the programme p (GP, AW, VAW). $\text{NP}_{(p,m,r)}$ stands for the number of JS inflowing into registered unemployment in month m and region r, participating in the ALMP programme p during the period of $2007 - 2014$. $N_{(m,r)}$ refers to the total number of JS inflowing into registered unemployment in the month m and region r.

Model 1, only includes variables of availability of all the three programmes as well as the availability of all other ALMP programmes offered by COLSAF.

Model 2, additionally involves variables referring to individual´s characteristics, including variables referring to acquired education and skills.

Model 3, on top of the variables used in Model 1 and Model 2 includes variables referring to employment and unemployment history, as well as the variables of the regional labour market situation.

All three models are estimated[22] separately on the probability of participation in each of the three evaluated programmes. A complete list of the variables used as explanatory variables can be found in the Annex.

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[22] Bootstrapping was used to estimate the standard errors, with 500 bootstraps.

3.2 Estimation of the impact on post-participation employment

Impact on post-participation employment is quantified under the Rubin causal model (Rubin, 1974) as the average treatment effect on the treated (ATT). Let Y be the outcome of our interest – post participation employment. Y^0 and Y^1 refer to the potential outcomes if an individual has or has not participated in the programme. D refers to actual participation in the measure. We consider two possible levels of the treatment variable (D), the individual has participated or not participated in the programme (D=1 or D=0). ATT is quantified as a difference between the information on participants post-participation employment ($Y^1 / D = 1$) and the contrafactual situation of participants post-participation employment if they would not participate in the programme ($Y^0 / D = 1$) (Caliendo and Hujer, 2005).

$$\Delta ATT = E(\Delta / D = 1) = E(Y^1 / D = 1) - E(Y^0 / D = 1) \tag{3}$$

Because we are not able to observe the counterfactual situation, of participants´ outcomes if they had not participated in the programme ($Y^0 | D = 1$), we substitute this information with the information on the outcomes of non-participants (E($Y^0 | D = 0$). In line with Rosenbaum and Rubin (1983) we claim that when conditioned on the observable characteristics the treatment assignment is strongly ignorable, under the following assumptions:

The stable unit treatment value assumption – SUTVA claims that there are no other possible levels of the treatment besides D=1 and D=0 and that there is no interference among participants affecting their potential outcomes (Y^0 and Y^1).

The un-confoundedness assumption claims that the potential outcomes are not confounded by the observable covariates X, meaning that (Y^0 and Y^1) is not associated with X otherwise than through the treatment participation D.

$$Y^0, Y^1 \perp D|X \tag{4}$$

Based on the **common support assumption** an overlap is expected in on observable characteristics/covariates (X) between the group of participants and non-participants in the programme.

Under these assumptions, three propensity scores are estimated on the probability to participate in each of the programmes under consideration (GP, AW, VAW). The propensity scores are used as the balancing scores (Rosenbaum and Rubin, 1983) in balancing the groups of participants and non-participants on all observable covariates. In doing so, two different matching estimators are applied.

The *nearest neighbour estimator (NN)* matches one participant with up to 10 non-participants presenting the nearest observations in terms of the propensity score.

Inverse probability weighting estimator (IPW) (Cattaneo, 2010) applies an approach inverse to the calculation of the population weights in sample surveys. Each of the control group observations is accounted for with a weight which is inverse to its distance to the treatment observation expressed in the propensity score.

Both these estimators expect the ignorability of the treatment assignment when conditioned on the observable characteristics (X). To provide additional support to our ATT estimates, we are also reporting LATE estimated by applying the *Instrumental variable estimator (IV)* (Imbens and Angrist, 1994). However, assuming homogeneous treatment effects in our setting would be unjustifiable; estimates based on the IV estimator are thus of limited comparability to the ATT estimates produced by NN or IPW.

3.2.1 Specific issues related to the estimation of the treatment effects

The outcome of interest is unsubsidized employment, which takes place in Slovakia, during the period from 2012 to 2014. The outcome indicator is based on reporting to the Social insurance database, which is obligatory for all employed and self-employed persons in Slovakia. Data allow us to estimate ATTs on a monthly basis. Estimates for a period of up to 36 months after participation are reported. Participants of all three considered programmes from 2011 are being compared to registered JS who did not participate in any other ALMP programme during the whole observation period (2007 – 2014). Only one-time participants are considered[23]. Comparisons take place in real time[24], and the groups of participants and non-participants are balanced in terms of the start of their unemployment spell. In the case of the AW, only non-participants already unemployed for more than 12 months by the end of 2010 are used as controls. Balancing of participants and non-participants on the month of inflow into unemployment, together with disregarding for observations with participations in other ALMP programmes or participations outside the evaluated period 2011, we deal with the objections related to the dynamic treatment assignment (Fredriksson and Johansson, 2008).

Our context allows the control group construction exclusively out of individuals whose outcomes are not biased by participations in other ALMP programmes or by ALMP participations pre or post the evaluation period. Such group is still extensive enough, presents over two-thirds of our sample with almost 154 thousand observations. In contrast, the number of the most numerous treatment group – GP participants only involves 14 300 individuals, comprising 6.44 percent of the sample.

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[23] Cases with ALMP programme participations outside 2011, participations in other ALMP programmes, multiple participations in one programme, or multiple participations in multiple programmes are dropped from the analysis. Due to the low accessibility of ALMP programmes in Slovakia during the observation period, this groups altogether present only 22.41 percent of the original sample.

[24] Relative time (relative to the start of the unemployment spell), generated in line with the dynamic evaluation scheme proposed in (Fredriksson and Johansson, 2008), was used in the sensitivity analysis. Results acquired by applying this procedure do not show significant differences from the reported results. Detailed results for the PSM model can be found in the Online Annexe at: http://ekonom.sav.sk/uploads/work/PSM_NN_relative_outcome.txt.

Graph 3

Distribution of the propensity score variables over ALMP participation in GP, AW and VAW
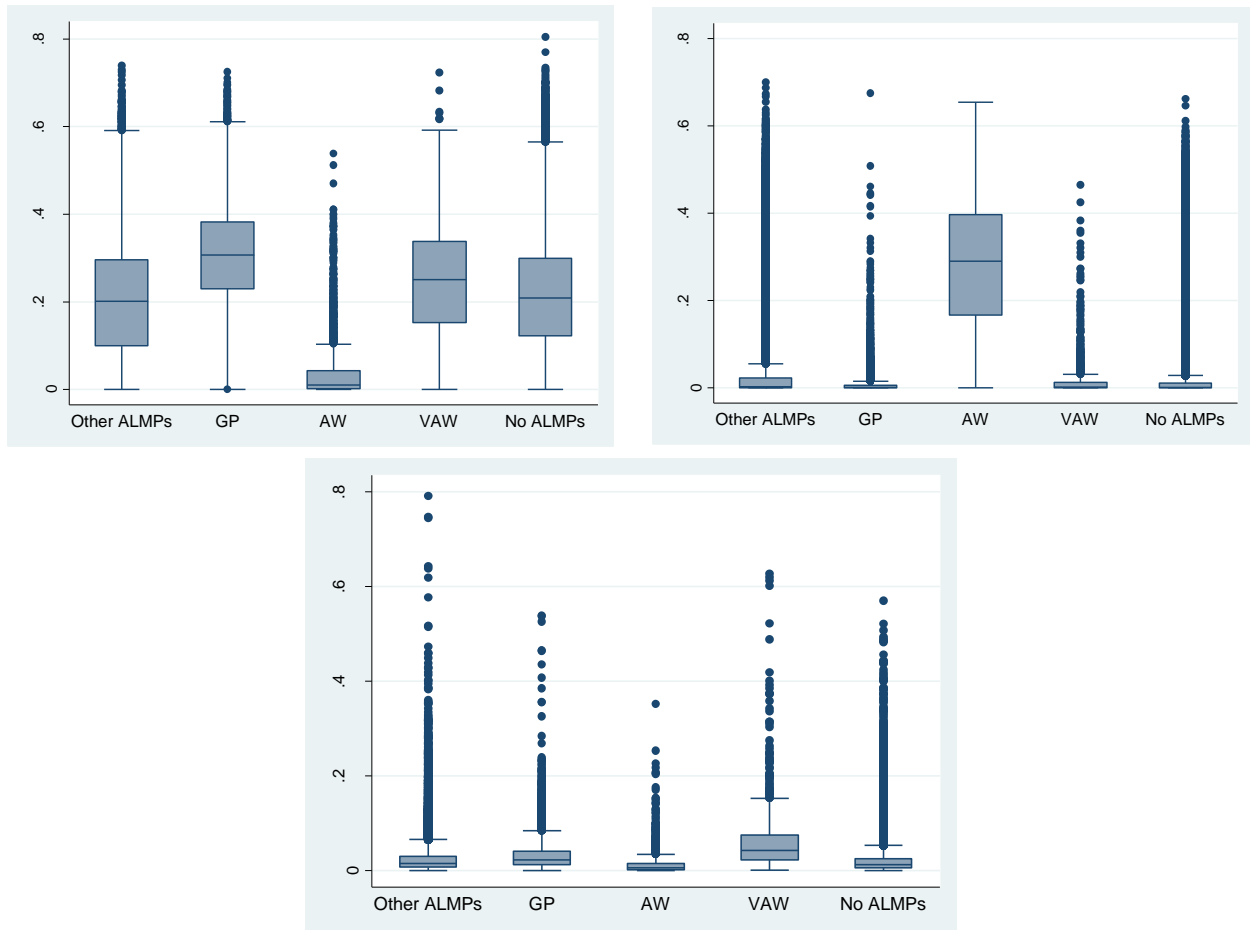
Source: COLSAF Database.

The distribution of the propensity score variables reveals substantial differences between participants in the three programs. Especially the AW participants seem to differ substantially from the GP and VAW participants. Thanks to the size of the main population of no ALMPs participants, the comparable control groups can be drawn for each of the programmes. Existing data setting, therefore, give us good reasons to believe that the common support assumption is not violated.

Table 2

Number of observations excluded because of the common support assumption violation (NN matching estimator)

		Common support		
		Off support	**On support**	**Total**
GP	*Untreated*	0	152 037	152 037
	Treated	2 805	11 495	14 300
AW	*Untreated*	0	150 902	150 902
	Treated	881	2 008	2 889
VAW	*Untreated*	0	151 292	151 292
	Treated	263	821	1 084

Source: COLSAF Database.

In the assessment of the un-confoundedness assumption, evidence on the satisfying balance between the group of programme participants and the control group after matching is at hand. The satisfactory balance was achieved already by applying, the most intuitive, nearest neighbour matching (NN). In the case of AW and VAW, mean as well as the median bias of covariates in comparison groups after matching remain under 2; in the case of GP balance is even more satisfactory with mean and median bias under 1.

Table 3
Summary statistics on balance (NN matching estimator)[25]

	Sample	Ps R2	LR chi2	p>chi2	MeanBias	MedBias	B	R	%Var
GP	Unmatched	0.194	18912.81	0	13.8	8.4	127.2*	0.5	100
	Matched	0.001	32.07	1	0.7	0.6	7.5	0.88	88
AW	Unmatched	0.537	15398.73	0	47.9	28.4	310.8*	0.91	100
	Matched	0.008	47	0.984	1.9	1.2	21.7	0.82	56
VAW	Unmatched	0.223	2869.09	0	19.2	13.2	143.0*	1.46	81
	Matched	0.02	46.44	0.989	2	1.4	33.9*	0.8	50

Source: COLSAF Database.

Average treatment effects (ATT) on the treated acquired by the matching estimators (NN and IPW) are complemented by Local average treatment effects (LATE) acquired by the IV estimator. In the case of all three evaluated programmes, we have used instrumental variables constructed in the same manner as the above-described variables of the programme availability (See equation 1). These are the indicators of the accessibility of each of the programmes at the regional level to particular monthly inflow cohorts of JS. Programme participations are distributed by COLSAF regional offices and are, therefore, dependent on the policy of each of the particular COLSAF regional offices. Moreover, the accessibility changes within the calendar year because of budgeting processes within COLSAF. Through these "external" sources of variability, potential participants can be deterred the possibility to participate simply because of capacity reasons. As can be seen from the analysis of the determinants of programme participation, the availability variables show a very strong explanatory power.

The three instrumental variables are, thus, counted as the share of the inflow cohort of JS in the region *(r)*, month (*m*), participating in each of the programmes *(p)* (See equation 1). In this form, they seem to grasp the exogenous exclusion moment for those JS registering in a month or region suffering from low programme accessibility.

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[25] Detailed information about the results and balance of all the models can be found at:
http://ekonom.sav.sk/uploads/work/Online_Annex_The_Youth_Unemployment_Guarantee.xlsx

4 SUMMARY OF THE RESULTS

The moment of selection into each of the measures is of twofold interest here. First, we explore the determinants of participation in each of the measures. Second, we try to deal with the selection bias when producing the estimates of the impact on employment of participants.

4.1 Determinants of participation in GP and AW

Model 1 only includes variables referring to the availability of various ALMP programmes of interest. Variables of availability of the programmes appear to be explanatory very strong. First, we report the variable referring to the total availability of all programmes during the whole observation period. This variable is positively associated with participation in all three evaluated measures. The probability of participating in the evaluated programme is significantly higher in regions and inflow cohorts with higher overall access to ALMP programmes. This association weakened after including regional dummies with other regional level variables in Model 3.

Not surprisingly, the region/time specific availability of the evaluated programmes shows a significant positive association with individual level participation in each of the programmes. This is confirmed for all three evaluated ALMP programmes (GP, AW and VAW).

All the equations included variables of availability of all three evaluated programmes, together with the indicator of the overall availability of ALMP programmes. This allows us to follow potential patterns in the behaviour of regional COLSAF offices in terms of ALMP programmes provision. In the case of the probability of participating in the GP, the availability of GP is associated positively, while at the same time the availability of AW shows a negative association. This suggests that these two ALMP programmes are to some extent being used as substitutes. In other words, if the availability of GP is not a constraint, this programme is also provided to those who would otherwise end up in AW. This association is in line with the perception of the evaluated programmes by the COLSAF caseworkers: GP is the more exclusive of the programmes with limited accessibility; AW is being provided if GP is not an option.

AW and VAW are to some extent comparable. VAW is more often distributed in less remote and economically better performing regions.

Table 4
Probit model results for participation in the evaluated programmes

Programme	GP			AW			VAW		
Model	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
ALMP programs accessibility									
Availability of ALMP (month*region)	0.016***	0.016***	-0.002	0.051***	0.053***	0.027***	0.030***	0.026***	0.015*
Availability of GP (month*region)	0.128***	0.128***	0.134***	-0.014**	-0.004	0.030***	0.036***	0.031***	0.030***
Availability of AW (month*region)	0.012***	0.033***	-0.012**	0.201***	0.175***	0.114***	0.026***	0.036***	0.013
Availability of VAW (month*region)	0.020*	0.039***	0.012	0.090***	0.046**	0.070***	0.456***	0.462***	0.392***
Individual characteristic									
Male		-0.703***	-0.694***		-0.063	-0.161**		-0.821***	-0.842***
Age		-0.098***	-0.088***		-0.020*	-0.025*		0.018	0.023
Single		0.176***	0.132***		-0.417***	-0.358***		0.011	-0.048
Healthy		-0.590***	-0.368**		0.517	0.719		-1.445***	-1.286***
Education level (Tertiary education omitted)									
Elementary		-1.610***	-1.559***		0.315***	0.143*		-0.374	-0.426*
Secondary		-0.223***	-0.189***		-0.255**	-0.218*		-0.200*	-0.183*
Skills									
English		0.964***	1.077***		-0.713***	-0.662***		0.219	0.350**
PC skills		0.159***	0.182***		-0.571***	-0.583***		0.164*	0.181*
Employment history									
Employed 6 months before the unempl.			0.141***			0.031			0.007
Employed 1 month before the unempl.			0.317***			0.055			0.215*
Unemployment history									
Length of the first unemployment			0.000			0.000***			0.001***
Was unemployed in the past			-0.481***			0.616***			-0.139***
Regional variables									
Avg. unemployment rate in the region in 2008			0.027***			0.051***			0.077***
Travelling time to the closest COLSAF office			-0.01***			0.009**			-0.009**

Constant	-3.824***	-2.998***	14.056	-5.740***	-4.003***	26.677	-6.224***	-5.800***	109.835
Controlling for the field of education	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Further socio-economic characteristics	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Previous employment economic sector and occupation	No	No	Yes	No	Yes	Yes	No	Yes	Yes
Controlling for other ALMP participations	No	No	Yes	No	Yes	Yes	No	Yes	Yes
Regional COLSAF office dummies	No	No	Yes	No	No	Yes	No	No	Yes
Other regional characteristics	No	No	Yes	No	No	Yes	No	No	Yes
Model summary									
N	187 016	187 016	186 832	175 566	175 566	158 740	173 705	173 705	164 113
Pseudo R-square	0.1049	0.1683	0.1978	0.374	0.4931	0.549	0.1247	0.1737	0.2110

Legend: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
Source: COLSAF Database.

Out of individual characteristics (included in Model 2 and Model 3), female participate more often in all three of the analysed programmes. A distinguishing characteristic is the educational and skill level, with tertiary educated and those declaring higher English and computer skills more often participating in the GP. AW participants are more often only primary educated, declaring no command of English or a computer. Educational and skill level of VAW participants is more comparable to GP than to AW participants.

Moreover, the GP and VAW participants have less unemployment experience, than AW participants. GP participants are more likely to have a previous employment history, which might be perceived as surprising when considering the design of the measure is targeting recent graduates. In general, adding variables referring to employment and unemployment history with regional variable increases the explanatory power of the model relatively more in the case of AW and VAW.

AW participants also live in settlements witch are more remote to the nearest COLSAF regional office. In contrast the likelihood of participation in GP or VAW is significantly higherwhen living more close to the COLSAF regional office.

Our results show that in the case of the GP it is to a significant extent a question of availability of such option (GP) in the region for that particular inflow cohort of job seekers. In the case of AW, the moment of selection into the measure is driven by the skill level, with low-skilled being directed towards AW. VAW works as a substitute for AW applied more often in economically better-performing regions. Complete results for the probit estimates can be found in Annexe 2.

4.2 Differences in the impact on post-participation employment as a source of inequality

Based on the results acquired by the propensity score model, the two measures differ substantially also in their impact on post-participation employment. After 24 months, the employment rate of GP participants is 59.03 %, in the case of AW participants it is only 13.99 %, and in the case of VAW it is 52.25 %. After balancing the group of participants with an ex-post selected group of eligible nonparticipants, we observe "control group" employment rates of 47.96 % for GP, 19.92 % for AW, and 43.02 % for VAW. Thus the estimated impact on employment of participants (ATT) after 24 months is positive in the case of GP (11.07 p.p.) and VAW (9.23 p.p.) and negative in the case of AW (-5.93 p.p.).

The data allowed us to estimate ATTs on a monthly basis for the period up to 36 months after the end of the participation period. These are displayed in the following graphs.

Graph 4
Impact on post-participation employment in months after the participation, based on the three estimators
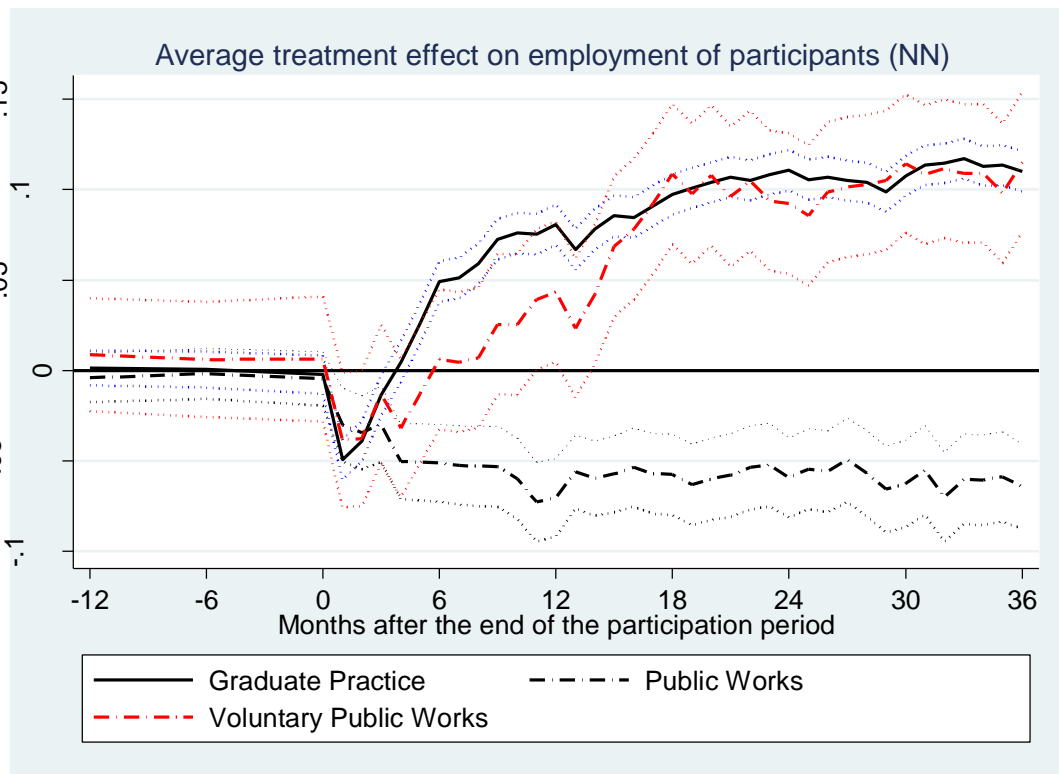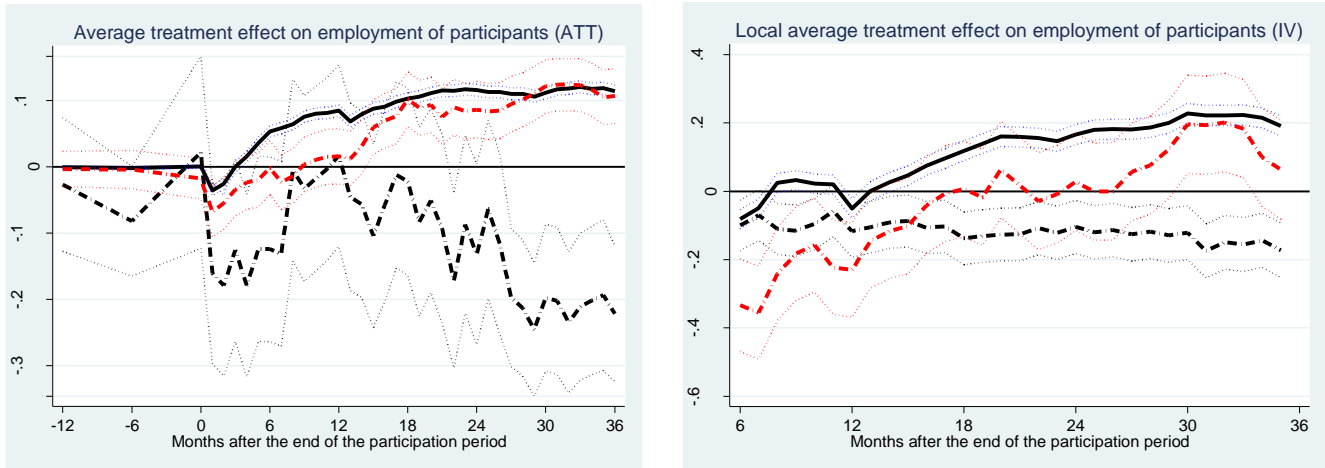
Note: 95 % confidence intervals dotted line.
  Nearest neighbour matching (upper graph),
  Inverse probability weighting (Down Left), IV regression (Down Right)
Source: COLSAF Database.

Following the estimates acquired by the NN estimator, employment effect 6 and 12 months before the start of the unemployment spell is close to zero. This is a display of a balance between the groups of participants and the control group. Shortly after the end of the participation period, a drop in the employment effects can be observed. This is due to the lock-in effect, which disappears within six months after the participation. First, after six months, the differences between evaluated programmes start to be observable. The employment effect of the GP turns into positive and statistically significant figures, while the AW remains below zero. This is observable in the NN estimates but also confirmed by the estimates acquired by IPW. The sign and significance of the estimates also match with the IV estimates, although the difference here is observable relatively later (12 months after the participation).

VAW performs comparably to the GP, with a slightly longer lock-in effect, yielding first positive, statistically significant effects 15 months after the end of the participation. The same picture is drawn by the NN as well as IPW estimator. IV estimates only give positive statistically significant employment effect for VAW after the 29th month.

In contrast, participation in AW is linked with a negative impact on employment. This was confirmed by all three estimators. Estimates only differ in the period for which this negative effect is statistically significant; for NN and IV estimates the negative effect is statistically significant practically during the whole observed post-participation period, in the case of IPW the negative effects differ statistically significantly from zero first after 25 months.

The key findings drawn from our results are thus supported by all three, methodologically alternative, estimation methods. Positive employment effects of the GP are, after a short lock-in effect, growing basically until the end of the observation period. VAW participation results into positive employment effects after a relatively longer lock-in effect. AW participation is associated with a lower chance of being employed during the post-participation period.

Observed differences in ATTs, remain practically during the whole observation period, confirming a clear contribution of AW participation to existing inequalities, in terms of lowering their employment chances.

5 CONCLUSIONS

Rich empirical evidence on the negative impact of early career unemployment on future employment outcomes is at hand; especially for the low skilled. Here we provide evidence on how three comparable and alternative ALMP programmes in Slovakia are distributed to registered job seekers and how these can differ in terms of their impact on post participation employment. The design of all the three programmes aims to enable collecting job experience by inserting unemployed individuals into a workplace environment. The programmes differ in the composition of participants resulting from a selection process administered by the public employment service provider – COLSAF. Moreover, they vary in the nature of the workplace environment participants are being inserted. While GP and VAW dominantly use insertion into a job already existing within an organisation, AW inserts into a "public works" type of job for the municipality.

The analysis of the determinants of selection of youth registered JS into one of the evaluated ALMP programmes suggests that the programmes are being used alternatively. While GP is the more exclusive out of the programmes, VAW and especially AW are being provided in situations when GP is not available, because of budgetary limitations. Moreover, AW is preferably provided to less skilled job seekers with less favourable employment history.

AW is declared to be an ALMP programme, but at the same time also an element of the social security scheme. AW participants have to be also eligible for the minimum subsistence benefit – live in a low-income household. Our data do not include household level information, but we observe individual working income history for four years before the participation period. After accounting for the selectivity bias by relying on observables (NN and IPW) as well as unobservables (IV) we still yield negative treatment effects on employment after participating in AW. Because of that, we conclude that AW does not perform as an ALMP programme, because it does not activate. Examples of "public works" programmes being linked with negative employment effects are fairly often (Card et al, 2015). Our results have no implications for the AW performance within the social security scheme.

Inequalities existing at the initial phase, before the selection into one of the ALMP programmes, are being further deepened by the differences in the impact of the programmes on post participation employment. While the programme creaming off the pool of youth registered job seekers (GP) additionally improves their employment chances; the leftover programme (AW) is linked with lower employment chances in the subsequent stages of participants´ careers.

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ANNEX 1: A COMPLETE LIST OF EXPLANATORY VARIABLES

Variable	Variable name in the dataset
Share of JS in ALMPs (month*region)	almp_month
Share of GP in ALMPs (month*region)	gp_month
Share of AW in ALMPs (month*region)	pw_month
Share of VAW in ALMPs (month*region)	vpw_month
Individual characteristic	
Male	male
Age	age
Nationality	nation
Hungarian	Hungarian
Roma	Roma
Other+ un..	Other+ undeclared
Other than Slovak citizenship	notSK
Single	single
Healthy	healthy
Education level	
Elementary	edulev2
Secondary	edulev3
Tertiary	edulev4
Field of education (eduf1-eduf9)	
Skills	
English	aj
Driving licence	vp
PC skills	pc
Socio economic characteristics	
Income quartile within agegroup	rincage
Employment history within agegroup	emplage
Economic sector in previous job	
sector2	sector2
sector3	sector3
sector4	sector4
Occupation in previous job (isco1-isco10)	
Employed 12 months before the unemployment spell	Empl12_before
Employed 6 months before the unemployment spell	Empl6_before
Employed 1 month before the unemployment spell	Empl_before
Unemployment history	
Entry into registered unemployment	zaradenie
month_inflow	month_inflow
Length of the first unemployment	spell1
Number of past unemployment spells	spells_aw
Was unemployed in the past	past_un
Other ALMP participations (p50_before, p53_before, p54_before, p56_before, p60_before, p52_before, p46_before, p49_before, p51_before, p50i_before, p50j_before)	
Barrier to employment	barrier
Children under 10 years	kids
Regional dummies (kraj1-kraj8)	
Regional variables	
Avg wage in 2009	wage2009
Avg unemployment rate in 2008	un_rr2008
Travelling time to the capital	min_BA
Travelling time to the regional centre	min_kraj
Travelling time to the regional COLSAF office	min_urad