

The type of workplace insertion drives employment chances of the unemployed youth*

(Evaluation of three programmes supporting workplace insertions available to young job seekers in Slovakia)

Miroslav Štefánik[†], Lukáš Lafférs[‡]

Abstract

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 off the more skilled job seekers, is further increasing their employment chances, while an alternative programme results in a significant decline in post participation employment.

JEL classification: : J08, J68, J24, D04, C21.

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

Introduction

In cases of economic slowdowns, the unemployment rates of younger age cohorts react to the worsening labour market situation with higher elasticity than those of the main age group.¹ Young employees get fired more often because employers value tenure and prefer to invest in more stable, older workforce (Topel & Ward, 1992). For the same reason, young job seekers (JS) are disadvantaged when seeking employment. Their disadvantage multiplies

*This work was supported by the Slovak Research and Development Agency under the contract no. APVV-17-0329 and the Slovak Scientific Grant Agency - VEGA under the contract no. VEGA 2/0182/17.

[†]Institute of Economic Research, Slovak Academy of Sciences, Šancova 56, 811 05 Bratislava, Slovakia, miroslav.stefanik@savba.sk

[‡]Department of Mathematics, Faculty of Natural Sciences at the Matej Bel University, Tajovského 40, 97411 Banská Bystrica, Slovakia, lukas.laffers@gmail.com, www.lukaslaffers.com

¹A wide list of studies analysed this aspect of the post-crisis, labour market development after 2008; among others: (Scarpetta et al., 2010), (Verick, 2009), (O'higgins, 2012), (Bell & Blanchflower, 2010), (Grotti et al., 2018).

with higher inflows of older JS into the pool of unemployed. Increased youth unemployment rates after 2008 thus became an urging policy challenge for most of the OECD countries (OECD, 2013); a similar development can also be expected in the case of future periods of economic worsening, such as the one following the COVID-19 pandemics in 2020.

Negative consequences of the persistently increased youth unemployment² motivate a quite intensive policy response. Even before the hit of the recent economic crisis and the resulting European Union (EU) wide initiative of the Youth Guarantee, practically all EU countries implemented active labour market policies (ALMP) targeting youth unemployed with specifically designed programmes (Betcherman et al. 2007). Despite that good examples of ALMPs are at hand, the overall assessment based on earlier meta-analyses (Card et al., 2010), (Ehlert et al., 2012) shows that these are rather rare. A more recent meta-analysis (Card et al., 2018) points at a relatively lower effect of ALMP, in general, for young as well as older JS.

We describe a situation of pipelining young JS through three alternative, but comparable ALMP programmes facilitating workplace insertions. The objective is to compare them in terms of their impact on post-participation employment. Through the comparison we aim to extract information relevant from the perspective of designing employment policies. The programmes of interest are comparable in terms of the type and extent of received support. The main difference lies in the type of workplace where JS are placed. Workplace insertions sheltered by the programmes of Graduate practice (GP) and Voluntary Activation Works (VAW) enhance the 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.

We see our contribution in adding to the existing evidence of impact evaluations of youth-oriented ALMPs by documenting an example from the under-explored region of central and eastern Europe. Moreover, we build our analysis on comparing the impact of three ALMPs offered to young JS during the same period. Comparing between alternative programmes sheltering workplace insertions allows the generalisation of policy-relevant experience. In order to produce a reliable comparison of the impact of three ALMPs implemented in different stages of the unemployment spell, we adopt a dynamic impact evaluation scheme introduced by Vikström (2017). Our implementation of this routine on Slovak administrative data adds to the list of few, recent, impact evaluations under a dynamic impact evaluation framework (see Lombardi et al. (2019); Albanese et al. (2020)).

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.

²The 'scarring effect' on employment or income in later stages of the careers, described for example by (Elwood, 1982), (Goldsmith et al., 1997), (Burgess et al., 2003), (Gregg & Tominey, 2005), ((Schmillen & Umkehrer, 2017)). For an overview of studies on wider social consequences of youth unemployment see: (Bell & Blanchflower, 2010)

1. Evidence on the impact of policies tackling youth unemployment

The transition from school to the labour market plays a crucial role in shaping individuals careers (Elder & 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 & 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 & Tominey, 2005), (Goldsmith et al., 1997)). Negative employment effect is observable especially in the case of low-skilled individuals (Burgess et al., 2003). In recent empirical study, Schmillen & 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. Besides the impact on labour market outcomes, 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 massive policy response. In the case of ex-tenet, the EU-wide Youth Guarantee presents an unprecedented initiative. ALMPs present an important channel through which support is flowing under this initiative (Eichhorst & Rinne, 2018). Nevertheless, evidence on their impact remains ambivalent. Compared at the programme level, successful examples can be identified, but systematic overviews suggest that they certainly do not dominate (Kluve, 2010; Card et al. (2010)). In a follow-up meta-analysis Card et al. (2018) claim that ALMPs, show a lower impact on labour market outcomes of participants, in the case of younger as well as older participants. Caliendo & Schmidl (2016) conduct a meta-analysis of 37 impact evaluations of ALMPs specifically targeting youth unemployed, or reporting estimates for this sub-group. Summarising the evidence, dominantly from west European countries and Scandinavia⁴, they also conclude available evidence to be ambivalent. They classify ALMPs into four groups and point at zero, or negative effects of public sector work programmes, the heterogeneous impact of labour market training programmes and a dominantly positive impact of job search assistance and monitoring and wage subsidies. Labour market training programmes show more promising results in the case of workplace-based learning. Applying typologies at the programme level does not generate informative comparisons. Rather than identifying successful programme types, available evidence allows identification of successful elements of the program design.

Successful programmes targeting youth unemployed usually rely on providing working experience to recent graduates (Ehlert et al. (2012) ; Caliendo et al. (2011); Caliendo & Schmidl (2016)). Lack of working experience thus appears to be one of the barriers to finding employment, for recent graduates on post-crisis labour markets with a surplus supply of labour. 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 employment of participants were estimated for measures subsidising employment

³For an overview see: (Bell & Blanchflower, 2010).

⁴With only one study from eastern Europe (Hungary) and one from Southern Europe (Portugal)

(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. In practice, a mixed programmes based on supporting the collection of workplace experience in combination with a skill upgrading/training moment presents a quite widespread pattern in the design of youth targeting ALMP programmes.⁵ Training ranges from classroom to on-the-job training, with various levels of formalisation. A mixed approach, providing classroom training together with working experience, showed a positive impact on post-programme employment probability in Germany (Ehlert et al., 2012) or the United Kingdom (Dorsett, 2006). Generally, training programmes⁶ 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., 2018).

1.1. Evidence on the impact of ALMP workplace insertions in the Central and Eastern Europe

A dominant share of the available evidence on the impact of ALMPs was collected in the countries of Western Europe. Evidence from Germany, Scandinavia, or Switzerland is overrepresented in the meta-analyses of ALMP focused impact evaluation studies (see e.g. Card et al. (2010); Card et al. (2018); Caliendo & Schmidl (2016)). Slightly lagging behind are the countries of Southern Europe and barely represented are the countries of Central and Eastern Europe (CEE). A randomised controlled trial was organised to evaluate the impact of monitoring of job search effort of JS registered with the Hungarian public employment service (Micklewright & Nagy, 2010). Otherwise, impact evaluations relying on observational data dominate among the studies from the CEE region. Out of those identifying impact of policies on youth labour market outcomes, Horn (2016) evaluates the impact of the secondary-school programmes with apprentice-ships training on employment chances of youth in Hungary. Out of the impact evaluations of youth-oriented ALMPs, Hora & Sirovátka (2020) use a quasi-experimental design to evaluate a programme comparable to the Graduate Practice analysed here. They identify its positive impact on the duration of unemployment, which is more pronounced for the long-term and medium-skilled young JS. Positive employment effects of the Slovak Graduate Practice were estimated by Štefánik et al. (2020). An older study of Lúbyová & Van Ours (1999) estimated the negative effects of the predecessor of the Slovak Activation Works programme.⁷ Evidence from Poland also confirms a negative, or not statistically significant, employment effect of the public works-type of programmes (Wiśniewski & Maksim, 2017). Findings presented here, aim to complement this evidence by a comparison of the employment effects of three programmes facilitating workplace insertions to young JSs in Slovakia.

1.2. Application of a dynamic impact evaluation framework

In order to provide a comparison of three programmes, for which participants are being recruited in a different period of the unemployment spell, we need to account for the fact

⁵For example see (Ehlert et al., 2012), (Caliendo et al., 2011) for Germany, (Pessoa e Costa & Robin, 2009) for France, for the United Kingdom (Dorsett, 2006)).

⁶Card and co-authors refer to a wider group of human capital programmes.

⁷Referring to the programme as the *Socially purposeful and publicly useful jobs*.

that chances of finding a job vary in time during the unemployment spell. This is a problem often addressed by impact evaluations of ALMPs by adopting a so-called dynamic evaluation framework. In our identification strategy, we implement a dynamic estimator introduced by [Vikström \(2017\)](#). By implementing this routine, we add to, a rather short, list of recent studies. [Albanese et al. \(2020\)](#) implement the same routine in evaluating an early retirement scheme in Belgium, allowing working time reductions during years preceding retirement. It was also used in a comparison of dynamic estimators ([Lombardi et al. \(2019\)](#); [Thomas et al. \(2020\)](#)), as well as in the context of job-search assistance ([Muller et al., 2017](#)). The routine was further elaborated in ([van den Berg & Vikström, 2019](#)) in an application on the income effect of a training programme.

2. Slovak context and institutional setting

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 sector⁸, combined with relatively stronger inflows of young age-cohorts in the labour force due to demographic waving.⁹ Before the hit of the economic crisis in 2008, GDP, as well as employment growth in Slovakia, was one of 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.

2.1. Description of the measures under evaluation

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.¹⁰ Here we are mainly focusing on the period of 2011. During this year, there was only one ALMP particularly designed to target young JS registered with the Slovak public employment agency (COLSAF)¹¹ – the **Graduate Practice**. 6.65 percent of youth¹² in registered unemployment during 2011 were participating in this programme. Out of the age-unrestricted ALMP programmes, the **Activation Works** programme was the most numerous, with 1.33 percent of youth in registered unemployment during 2011 participating in this ALMP programme. On top of that, 0.56 percent of youth in registered unemployment participated in the **Voluntary Activation Works**; a subprogram offered under the framework of the Activation Works. During the evaluation period of 2011, the ALMP options available to young JS after registering with COLSAF were limited to the three programmes evaluated here. Since 2014, more ALMP programmes¹³ targeting youth unemployed were introduced under the EU-wide initiative of

⁸As a result of the transformation period from a socialistic central planning to a market economy.

⁹Extensive age cohorts of the late 70s and the 80s entering the productive age after 2000.

¹⁰Already 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.

¹¹Official name: The Central Office of Labour, Social Affairs and Family of the Slovak Republic

¹²For the sake of the consequent analysis we define youth unemployed as all individuals under 26 years of age in registered by COLSAF as unemployment JS. This is in line with the eligibility criterion applied in 2011 for the Graduate Practice.

¹³The GP is specifically designed for this purpose, as it targets only registered JS under 26 years of age to provide them with a chance to collect employment experience in a workplace insertion. The other two,

the Youth Guarantee. Most of them combine supported employment with a training moment. One of the programmes aims to assist youth in the transition from unemployment to self-employment.

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. No condition concerning the length of previous unemployment was applied. Participants spend up to 20 hours weekly at one employer during a period of 3 to 6 months. During 2011 participants received roughly 190 euro monthly, they were paid by COLSAF 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 young JS registered with COLSAF.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), (Štefánik et al., 2020).

The Activation Works (AW) programme aims to provide work experience and contact with the workplace to long-term unemployed¹⁵ JS of all age groups.¹⁶ Participants are working directly for the municipalities, delivering 20 hours weekly for the maximum period of 6 months. Received financial remuneration was comparable to the GP. In cases when the participant was receiving the minimum subsistence allowance, the AW was adding to the allowance.¹⁷ 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 from regular employers. Some municipalities organised AW in as community works, others used AW participants in municipal firms or administration. Available evaluation studies point at a stigmatising effect of participation in AW (Mytna 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

AW and VAW, are provided to all age groups of registered JS, with their main objective being to build or maintain their employability through workplace insertions. 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.

¹⁴18.6% of JS under 26 years, registered in 2011 entered GP in the period of 2011-2014.

¹⁵A long-term unemployed is a person remaining in registered unemployment for a period longer than 12 months.

¹⁶Originally the programme was designed as a passive labour market policy, with the eligibility being linked to the eligibility for the minimum subsistence allowance. The persons household income had to be under the threshold for receiving minimum subsistence benefit in order to be eligible for AW. Later, a parallel system of distributing the support evolved where this criterion was not applied. In 2011 the parallel system was already in operation (Mytna Kurekova et al., 2013).

¹⁷After the end of the evaluation period, 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.

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.

During 2011, all three evaluated ALMPs (GP, AW and VAW) were already in practice for a longer time.¹⁸ Additionally, all three of them share a common design, featuring the moment of workplace insertion to compensate for the lack of workplace experience of young unemployed JS. All three programmes are also comparable in terms of intensity of support (20 hours per week) and duration (maximum of 6 months) of the workplace insertion, as well as remuneration related to participation (apx. 190 euro per month).¹⁹ The main difference lies in the type of workplace where JSs are inserted. While in the case of the GP and VAW participants are inserted into a regular workplace²⁰ (GP) or a non-profit organisation (VAW), in the case of AW, participants are asked to participate mostly in community services organised by the municipalities. The organisation of AW varies widely between municipalities (Mytna Kurekova et al., 2013), driving also a high heterogeneity in the estimated impact of AW participation on employment (Štefánik et al., 2014).

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. [For more detailed information on the features of the implementation of the programmes, as well as the composition of participants, please, refer to the Online annexe \(LINK\).](#)

3. Data and the methodological framework

The ambition of this paper is to study the differences in the impact of participation in one of the three ALMP programmes alternatively offered to young JS. The outcome of interest is post-participation employment, proxied by the length of the unemployment spell. For this purpose, we explore a rich administrative dataset of the whole population of JS under 26 years of age. We observe all JS registered with the Slovak public employment service - COLSAF.²¹ Additionally, our database is 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 from 2011 to 2014.

¹⁸With small adjustments since 2004.

¹⁹Based on the minimum subsistence allowance. Minimum subsistence allowance 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.

²⁰Dominantly in the public sector.

²¹Central Office of Labour, Social Affairs and Family of the Slovak Republic - COLSAF.

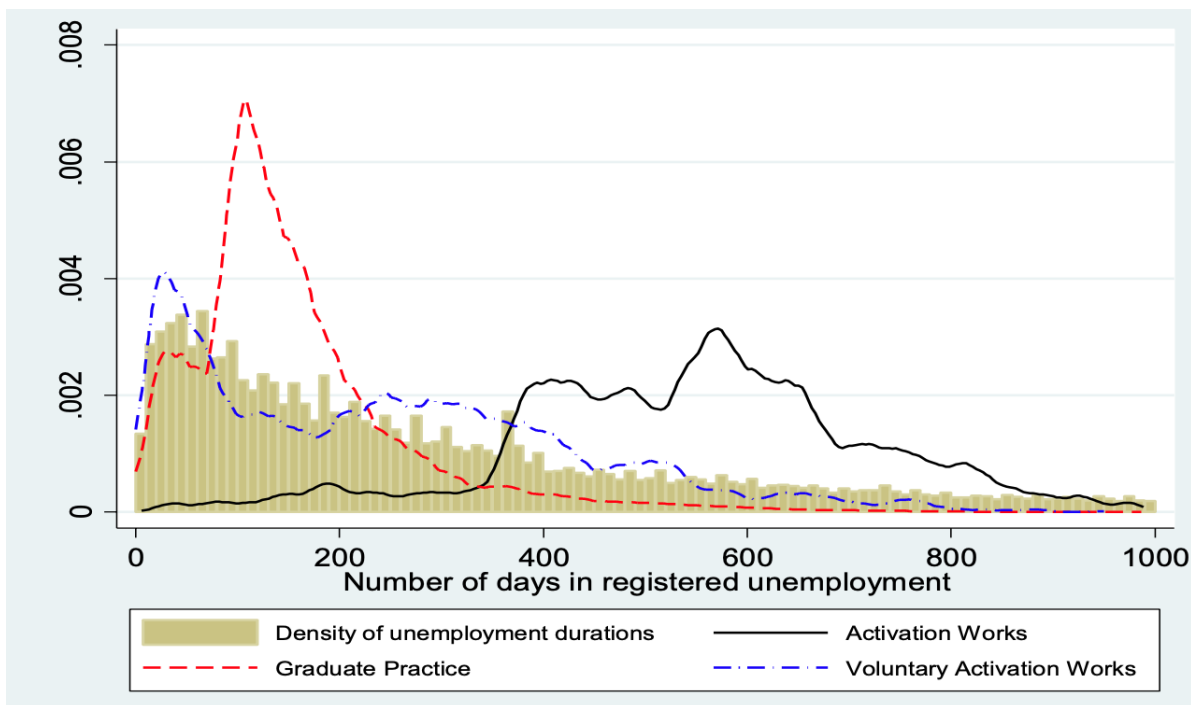


Figure 1: Density of ALMP participations starts based on the unemployment duration. Lines refer to an estimated Kernel relative density of participants based on the time elapsed between the start of their unemployment and entering the programme. Bars display the histogram of the relative density of all unemployment spells of JS under 26, registered during 2011, by the final duration of the unemployment spell in days. Source: COLSAF Database.

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, 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 group²² of eligible non-participants, we use the total eligible population of JS under 26 years of age, being in registered²³ unemployment during 2011.²⁴

tieto tabulky by bolo treba prerobit do peknej formy. urobim neskor, ked bude jasne, ze tabulka je finalna

Most of the individual characteristics of JS are being reported at the time of registration

²²Used 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.

²³In 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.

²⁴Other 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.

	Freq.	Percent	Unemployment spell in days	
			Mean	Median
Other ALMP²⁴	30 775	13.93	537	400
Graduate Practice (GP)	14 475	6.55	514	418
Activation Works (AW)	2 941	1.33	1 186	1 148
Voluntary Activation Works (VAW)	1 240	0.56	590	475
No ALMP programs	171 574	77.63	279	153
Total	221 005	100.00		

Table 1: The structure of individuals under 26 in registered unemployment in 2011, based on their ALMP participation.

Note: Other ALMP participations includes individuals participating in other ALMP programmes as well as participating in the three evaluated programmes (GP, AW and VAW) outside of year 2011, but within the observation period of 2007-2014.

Source: COLSAF Database.

through the *Application for registration in the database of JS*.²⁵ 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 participation. The set of covariates is complemented with a list of regional-level characteristics.

The main differences between the groups of eligible and participants are observable in the educational level, declared skills and labour market history. While GP and VAW participants copy the educational structure of the eligible, the educational and skill structure of AW participants is biased towards the low-skilled, with a high over-representation of individuals with elementary or lower secondary education and without any a command of PC or a foreign language. A similar picture is drawn by the evidence on labour market history, AW participants with less employment experience and longer past unemployment spells. Additionally, females are over-represented among the participants of the GP and VAW.

²⁵When applicable the attributes were updated with information from a more recent unemployment registration or based on elapsed time.

		Eligible	Participants		
			GP	AW	VAW
Male		0.57	0.36	0.58	0.30
Age		21.28	21.12	20.70	21.76
Educational level	No or elementary	0.01	0.00	0.09	0.00
	Lower secondary	0.11	0.01	0.41	0.04
	Higher secondary	0.62	0.67	0.17	0.59
Employed before the start of the unempl. spell	6 months	0.28	0.23	0.04	0.21
	12 months	0.26	0.21	0.04	0.19
	24 months	0.21	0.17	0.04	0.16
Legth of the first unemployment spell in days		101.62	73.55	192.89	124.23
Skills	Speaks some foreign language	0.82	0.96	0.34	0.90
	Driving licence	0.35	0.44	0.11	0.42
	Operates a PC	0.41	0.54	0.10	0.51

Table 2: Mean values of selected characteristics of the eligible and participants.
Source: COLSAF Database.

A complete list, with descriptive statistics on the sub-groups of interest, can be found in the Online annexe.

4. Identification strategy

In order to evaluate the effectiveness of the three programs, we employ the dynamic model of [Vikström \(2017\)](#) based on inverse probability weighting. A static evaluation framework is not appropriate in our context because participants are dynamically selected into the treatment. More concretely, one needs to take into account the length of the candidates unemployment. Job-seekers who are unemployed for longer have a different probability of entering one of the programs, as well as obtaining a job. In other words, there are two interdependent random processes - one which models employment and other that models selection into the treatment. Ignoring the interdependence between these two processes would lead to biased results.

There are different types of objects of interest that can be estimated in the policy evaluation framework (for an overview, see [Abbring & Heckman \(2008\)](#)). Here we focus on an average effect of treatment received after some elapsed time of unemployment compared with never receiving the treatment. More specifically, we make use of the average treatment effect on the treated s months after becoming unemployed on the probability of finding a job earlier than t months after becoming unemployed. This average effect was also considered in previous works, e.g. [Fredriksson & Johansson \(2008\)](#), [Crépon et al. \(2009\)](#).

Similarly to [Fredriksson & Johansson \(2008\)](#) and [Crépon et al. \(2009\)](#), [Vikström \(2017\)](#) makes use of not-yet-treated participants to get counterfactual probability of employment under never receiving treatment. As explained in [Albanese et al. \(2019\)](#), [Vikström \(2017\)](#) applies the IPW approach to dynamically adjust weights to account for selection into the programme of Kaplan-Meier estimator of “surviving” in the unemployment state.²⁶

In what follows, we denote our outcome of interest, the indicator of being potentially employed at time t (measured in months since the beginning of unemployment spell) if attending the programme at time s , as $Y_t(s)$, while the potential outcome if never treated is $Y_t(0)$. $\bar{Y}_t(s) = \{Y_1(s), \dots, Y_t(s)\}$ denotes the sequence of potential outcomes and $\bar{Y}_t(s) = 0$ represents that $Y_1(s) = \dots = Y_t(s) = 0$. Start of the program is denoted with S . X_t stands for a vector of additional covariates, measured at least slightly before time t and let D_t be the binary treatment indicator at time t .²⁷

Our object of interest is the average effect of participation in a program at time s . We look at the effect on the probability, that JS finds a job before time t compared with the probability that JS finds a job if he/she never participated in the program:²⁸

$$ATE T_t(s) = 1 - \left(\Pr(\bar{Y}_t(s) = 0 | S = s, \bar{Y}_{s-1}(s) = 0) - \Pr(\bar{Y}_t(0) = 0 | S = s, \bar{Y}_{s-1}(0) = 0) \right).$$

The identification of $ATE T_t(s)$ hinges upon the following identification assumptions:

²⁶[Albanese et al. \(2019\)](#) further extends this method by taking endogenous sampling into account.

²⁷This allows for dependence between the probability of entering into the programme and changes that happened during the unemployment spell. We are, however, not using time-variant covariates in our analysis.

²⁸We modified notation of [Vikström \(2017\)](#) so that the $ATE T_t(s)$ is interpreted in terms of probability of getting a job, rather than *survival in the state of unemployment*.

Assumption A1 Sequential unconfoundedness

$$\{Y_k(s); \forall k, s \geq t\} \perp D_t | X_t, S > t - 1, \bar{Y}_{t-1}(0) = 0.$$

This assumption relies on the fact that information on participants, captured by the vector of covariates X_t is rich enough so that controlling for it makes treatment assignment as good as random.

This assumption is likely violated if selection into treatment is mostly driven by individual motivations and heterogeneity that is correlated with potential outcomes. We control for a rich set of individual characteristics, including labour market history, complemented with regional-level indicators (a complete list of the covariates can be found in Table 1 of the Empirical appendix)²⁹.

Moreover, [Stefanik \(2018\)](#) shows that, in the Slovak ALMP context, the selection into treatment is substantially driven by the availability of ALMP funding in time and region of the potential participant. In a context of scarce resources and poorly managed access to ALMP programmes, JSs individual characteristics become relatively less relevant in comparison to the time and space of their appearance on the register of JSs.

Assumption A2 No-anticipation assumption

$$\Pr(Y_t(s_1) = 1) = \Pr(Y_t(s_2) = 1), \forall t < \min(s_1, s_2).$$

This assumption states that if JSs have information about timing of a future treatment (program participation) this does not result in a change in their behaviour related to job-seeking, e.g. job search intensity ([Abbring & Van den Berg, 2003](#)). In other words, job-seekers do not anticipate future treatments.

There are two aspects of the evaluated measures speaking against the potential violation of A2. Firstly, the received financial support was relatively small in comparison to the opportunity costs associated with finding regular employment. Participation in all three evaluated measures was associated with receiving a monthly payment of approximately one half of the minimum wage and less than one-quarter of the average wage. Secondly, because of the parallel implementation of AW by the municipalities ([Mytna Kurekova et al., 2013](#)), low-income household members were effectively eligible to receive AW since the beginning of their unemployment spell. Thus, the group most tempted by the financial support associated with the participation in AW, was not motivated to change their job-search effort based on the anticipated change of future income.

Under Assumptions A1 and A2, [Vikström \(2017\)](#) derives a consistent estimator for $ATE_t(s)$:

$$\begin{aligned} \widehat{ATE}_t(s) = & 1 - \left(\prod_{k=s}^t \left[1 - \frac{\sum_{i=1}^N Y_{k,i} \cdot \mathbb{I}(\bar{Y}_{k-1,i} = 0) \cdot \mathbb{I}(S_i = s)}{\sum_{i=1}^N \mathbb{I}(\bar{Y}_{k-1,i} = 0) \cdot \mathbb{I}(S_i = s)} \right] \right. \\ & \left. - \prod_{k=s}^t \left[1 - \frac{\sum_{i=1}^N \hat{\omega}_i(s, k) \cdot Y_{k,i} \cdot \mathbb{I}(\bar{Y}_{k-1,i} = 0) \cdot \mathbb{I}(S_i = s)}{\sum_{i=1}^N \hat{\omega}_i(s, k) \cdot \mathbb{I}(\bar{Y}_{k-1,i} = 0) \cdot \mathbb{I}(S_i = s)} \right] \right) \end{aligned}$$

²⁹[ADD A LINK TO THE ONLINE EMPIRICAL APPENDIX](#)

with

$$\hat{\omega}_i(s, k) = \frac{\hat{p}_s(X_i, s)}{1 - \hat{p}_s(X_i, s)} \frac{1}{\prod_{m=s+1}^k (1 - \hat{p}_m(X_i, m))}$$

where subscript i stands for the i -th observation, N is the sample size, $\mathbb{I}(\cdot)$ is an indicator function and $p_s(X_{i,s}) = \Pr(S = s | X_{i,s}, S \geq s, \bar{Y}_{s-1} = 0)$ is the probability that not-yet-treated unemployed individual in period $s - 1$ will enter the programme in the next period. While the term $\Pr(\bar{Y}_t(s) = 0 | S = s, \bar{Y}_{s-1}(s) = 0)$ is directly observable, Assumptions A1 and A2 are used in order to estimate $\Pr(\bar{Y}_t(0) = 0 | S = s, \bar{Y}_{s-1}(0) = 0)$ by sequentially using the not-yet-treated individuals, while correcting for their propensity of entering the treatment using weights $\hat{\omega}_i(s, k)$.

For an illustration, consider a JS who enters the programme 6 months ($s = 6$) after he or she became unemployed. We are interested in comparing a probability of this person finding a job 12 months ($t = 12$) after the beginning of the unemployment spell with a another treated person who would, counterfactually, never enter the programme. While we observe the first person, identifying assumptions need to be used in order to recover probability of finding a job for the second person.

4.1. Balancing the sub-groups of interest

In the following subsection we will check if the IPW approach we employed succeeded in producing a balanced sample. Consider a subsample of JSs eligible for the programme at time k , denoted as $\mathcal{S}_k = \{i : \bar{Y}_{k-1,i} = 0\}$ of size n_k . This sample consists of JSs who entered the programme (*treated* - $\mathcal{S}_k^t = \{i : S_i = k, \bar{Y}_{k-1,i} = 0\}$) and those who did not (*control* - $\mathcal{S}_k^c = \{i : S_i > k, \bar{Y}_{k-1,i} = 0\}$) of sizes n_k^t and n_k^c respectively.

If the re-weighting worked we should observe that empirical moments of the treated group are close to those of the control group weighted by

$$\hat{\theta}_{i,k} = \frac{\hat{p}_k(X_{i,k}, k)}{1 - \hat{p}_k(X_{i,k}, k)} \bigg/ \left(\sum_{i \in \mathcal{S}_k^t} \frac{\hat{p}_k(X_{i,k}, k)}{1 - \hat{p}_k(X_{i,k}, k)} \right),$$

where the weights were normalized to sum up to one.

For the j -th covariate, let us denote the means for the eligible, treated, control and weighted control group as $\bar{X}_k^{(j)}$, $\bar{X}_k^{(j),t}$, $\bar{X}_k^{(j),c}$ and $\bar{X}_k^{(j),cw}$ respectively, so that

$$\begin{aligned} \bar{X}_k^{(j)} &= \frac{1}{n_k} \sum_{i \in \mathcal{S}_k} X_{i,k}^{(j)}, \\ \bar{X}_k^{(j),t} &= \frac{1}{n_k^t} \sum_{i \in \mathcal{S}_k^t} X_{i,k}^{(j)}, \\ \bar{X}_k^{(j),c} &= \frac{1}{n_k^c} \sum_{i \in \mathcal{S}_k^c} X_{i,k}^{(j)}, \\ \bar{X}_k^{(j),cw} &= \frac{1}{n_k^c} \sum_{i \in \mathcal{S}_k^c} \hat{\theta}_{i,k} \cdot X_{i,k}^{(j)}. \end{aligned}$$

In order to quantify and visualize the balancing performance of IPW weighting for every time period k , we introduce a balance measure, which we call *standardized absolute bias*,

henceforth denoted as s.a.b_k^w . It is defined as the mean (across different covariates) in absolute differences between treated and weighed control means scaled by the standard deviation of the variable based on the eligible sample:

$$\text{s.a.b}_k^w = \frac{1}{J} \sum_{j=1}^J \frac{|\bar{X}_k^{(j),t} - \bar{X}_k^{(j),cw}|}{\widehat{\text{sd}}_k^{(j)}},$$

where

$$\widehat{\text{sd}}_k^{(j)} = \sqrt{\frac{1}{n_k} \sum_{i \in \mathcal{S}_k} \left(X_{i,k}^{(j)} - \bar{X}_k^{(j)} \right)^2}.$$

We can similarly define balance measure for j -th variable as an average across different time horizons k

$$\text{s.a.b}^{(j),w} = \frac{1}{T} \sum_{k=1}^T \frac{|\bar{X}_k^{(j),t} - \bar{X}_k^{(j),cw}|}{\widehat{\text{sd}}_k^{(j)}}.$$

For comparison purposes we define standardized absolute bias for unweighted control sample too and denote it as s.a.b_k and $\text{s.a.b}^{(j)}$. (Budeme kreslit aj tieto grafy?)

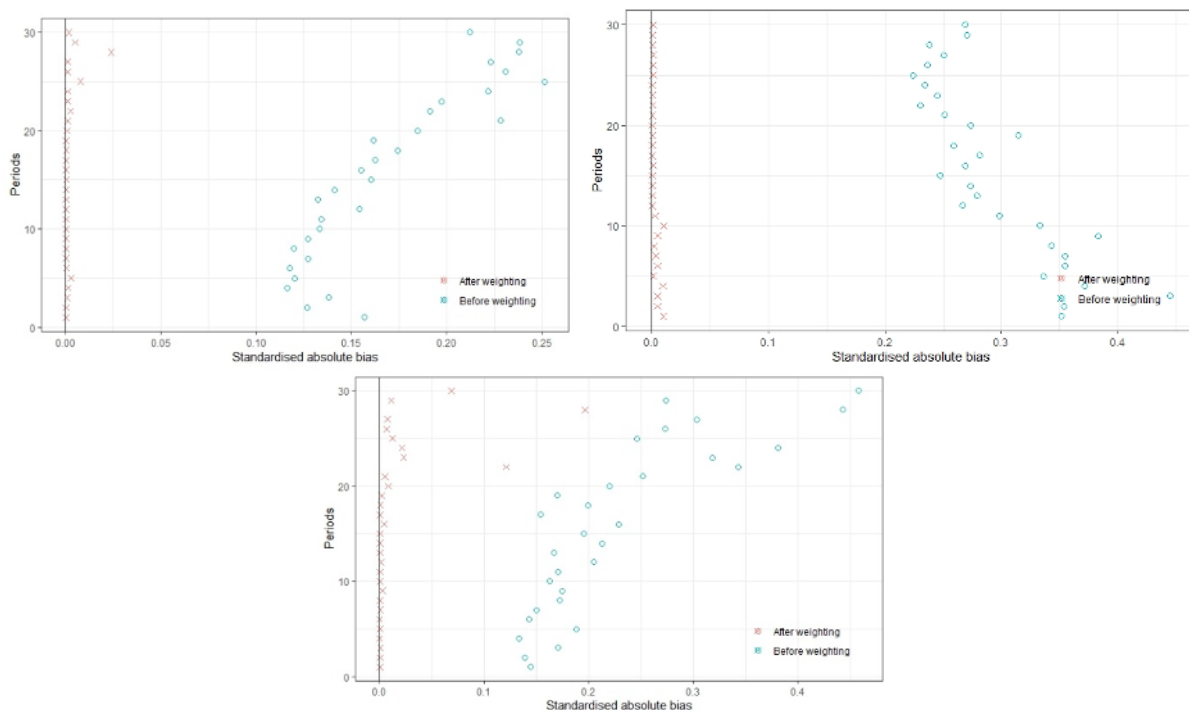


Figure 2: Comparison of standardized absolute bias before (s.a.b_k) and after IPW re-weighting (s.a.b_k^w). Source: COLSAF Database.

Figure 4.1 shows that IPW estimator led to a notable improvement in the balance measures for all three programmes.

Tieto grafy by mali mat rovnaku skalu.

5. Summary of the results

We trace the whole population of JS under 26 years of age, registered with the Slovak public employment service in 2011. The more educated of them, with more working experience and skills, were creamed-off to the GP programme. These presented approximately 6.65 percent of the eligible population; 65 percent of them were female and³⁰ over 90 percent of them were sent to the programme within the first six months after the start of their unemployment spell. Within the additional six months after the start of their GP participation, their chances to leave registered unemployment improved by approximately 5 percentage points, in comparison to a situation if they would not be sent to the GP. 18 months after the participation, the net gain in terms of employment chances declines, but remains statistically significantly different from zero through the whole observed post-participation period of 30 months.

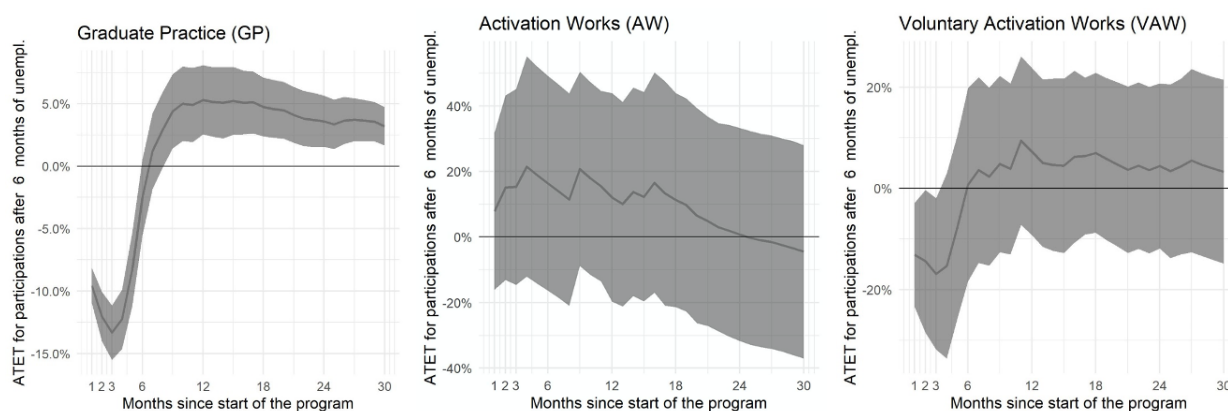


Figure 3: Average treatment effects on employment of those treated 6 months after the start of their unemployment spell, by the programme of interest. (Note: Employment is measured based on the presence or absence in the register of unemployed persons). *tu by mali byt podla mna skaly porovnatelne. rovnako musime vysvetlit, ze preco je to tak, ze tie confidence intervals su take siroke* Source: COLSAF Database.

When compared six months after the start of the unemployment spell, participation in AW or the VAW does not have a definite impact on the employment chances of participants. Especially in the case of AW, this is driven by substantial heterogeneity in the estimated coefficients, revealing the regional differences in the implementation of the programme. In the case of VAW, a wide confidence interval may be driven by a low number of observations in the group of participants.

One year after the start of the unemployment spell, participation in the GP does not increase the employment chances. Its lock-in effect prolongs, and although the ATETs grow into positive figures, 20 months after the participation, they remain not statistically significant until the end of the observation period.

The picture drawn for the AW does not change, from the one observed six months after the start of the unemployment spell. Despite that, the error decreases with the higher number of observations in the group of participants (as most of the AW participation take place

³⁰Their participation took between 3 to 6 months.

after 12 months of unemployment), the mean ATETs remain not statistically significantly different from zero.

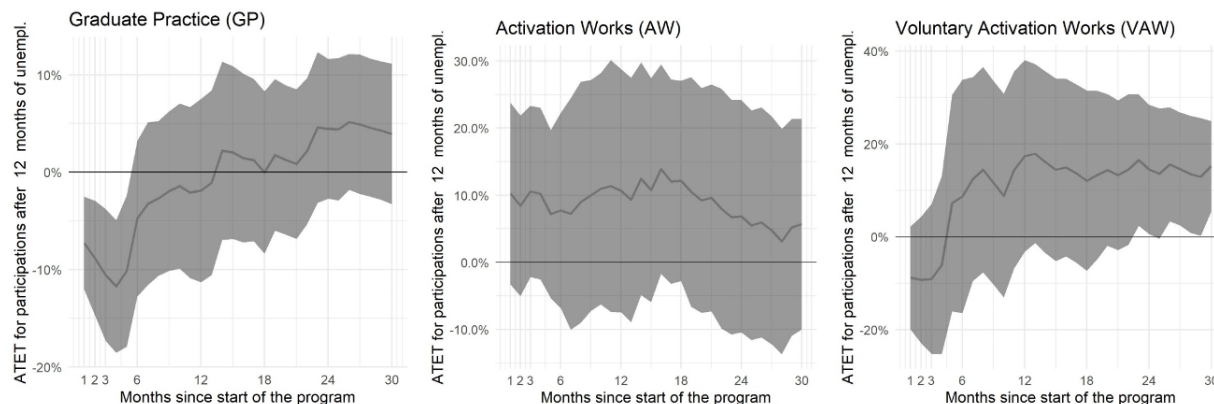


Figure 4: Average treatment effects on employment of those treated 12 months after the start of their unemployment spell, by the programme of interest. (Note: Employment is measured based on the presence or absence in the register of unemployed persons.) Source: COLSAF Database.

Interestingly, when considered after 12 months of unemployment, the VAW yields the best results out of the three evaluated programmes. After a short lock-in period, the ATETs climb sharply into figures, which are positive and high in magnitude (around 10 percent). Mostly due to the low number of participant observations, these figures remain not statistically significant for almost 20 months after the participation. Estimates yielded for the GP are not statistically significant, due to a small sample size, as only a small fraction of GP participations took place after 12 months of unemployment.

6. 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 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 administrated by the public employment service provider – COLSAF. Moreover, they vary in the nature of the workplace environment where participants are being inserted. While GP and VAW dominantly use insertion into a job already existing within an organisation, AW inserts into a “community works” type of job organised by 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 (see the Empirical appendix for more details on the composition of participants. [A comparable](#)

portfolio of ALMP programmes is quite common in the region of Central and Eastern Europe. For example, Hora & Sirovátka (2020) studied a Czech ALMP programme comparable to the GP, pointing at its effect of creaming off the more employable young JSs. Authors also conclude, that in the case of the Czech GP, the employment effect of participation appears to be higher in the case of long-term unemployed participants. Despite the comparable institutional context, the evidence presented here suggests that the Slovak GP appears to increase employment prospects also when offered in the first six months of the unemployment spell.

Although the three programmes evaluated here are very similar, they could be classified differently. While under the GP, costs related to workplace tutoring of the participant are eligible (although only in a limited extent), AW and VAW do not have any explicit training element. Because of this feature, the GP could be placed somewhere on the edge of a workplace training and supported employment programme. The VAW is a mainstream programme of supported employment. The AW is strongly defined by the type of the workplace of insertion as a public works type of programme. A meta-analysis of studies evaluating youth-targeted ALMP programmes (Caliendo & Schmidl, 2016), points that supported employment usually is linked with positive employment effects through something like a foot-in-the-door effect. This also plays a role in the case of GP and VAW. In contrast with the usual pattern observed internationally, both these programmes cream-off those more employable from the eligible population (see Table 2). When evaluating wage subsidy programmes, it is hard to empirically disentangle the impact of participating in the programme from a potential substitution or deadweight effect, when employers hire youth with a subsidy in case they would hire youth even without it. This concern is underlined by creaming-off the eligible population to participate in the programme. The effects of the public works programme (AW) estimated here are not significantly different from zero. Examples of “public works” programmes being linked with negative employment effects are fairly often (Card et al., 2018). Earlier studies, based on a static evaluation framework, claimed that AW have a statistically significant negative impact on post-participation employment (Štefánik et al., 2014) (Hidas et al., 2016). We show that, when a dynamic evaluation framework is applied in a comparable data and institutional context, the statistically significant negative effects turn into positive, although not statistically significant.

Nevertheless, 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 programmes creaming off the pool of youth registered job seekers (GP and VAW) additionally improve their employment chances; the leftover programme (AW) is linked with lower employment chances in the subsequent stages of participants careers.

References

- Abbring, J. H., & Van den Berg, G. J. (2003). The nonparametric identification of treatment effects in duration models. *Econometrica*, 71, 1491–1517.
- Abbring, J. H., & Heckman, J. J. (2008). Dynamic Policy Analysis. In *Advanced Studies in Theoretical and Applied Econometrics* (pp. 795–863). volume 46. doi:10.1007/978-3-540-75892-1_24.

- Albanese, A., Cockx, B., & Thuy, Y. (2019). Working time reductions at the end of the career: Do they prolong the time spent in employment? *Empirical Economics*, (pp. 1–43).
- Albanese, A., Cockx, B., & Thuy, Y. (2020). Working time reductions at the end of the career: Do they prolong the time spent in employment? *Empirical Economics*, *59*, 99–141.
- Bell, D. N., & Blanchflower, D. G. (2010). Youth unemployment: déjà vu?, .
- van den Berg, G. J., & Vikström, J. (2019). Long-run effects of dynamically assigned treatments: A new methodology and an evaluation of training effects on earnings, .
- Burgess, S., Propper, C., Rees, H., & Shearer, A. (2003). The class of 1981: the effects of early career unemployment on subsequent unemployment experiences. *Labour Economics*, *10*, 291–309.
- Caliendo, M., Künn, S., & Schmidl, R. (2011). *Fighting Youth Unemployment: The Effects of Active Labor Market Policies*. Technical Report Institute of Labor Economics (IZA).
- Caliendo, M., & Schmidl, R. (2016). Youth unemployment and active labor market policies in europe. *IZA Journal of Labor Policy*, *5*, 1.
- Card, D., Kluve, J., & Weber, A. (2010). Active labour market policy evaluations: A meta-analysis. *The economic journal*, *120*, F452–F477.
- Card, D., Kluve, J., & Weber, A. (2018). What works? a meta analysis of recent active labor market program evaluations. *Journal of the European Economic Association*, *16*, 894–931.
- Pessoa e Costa, S., & Robin, S. (2009). ” an illustration of the returns to training programmes: The evaluation of the” qualifying contract” in france. *Institut de Recherches Économiques et Sociales de l’Université Catholique de Louvain*, .
- Crépon, B., Ferracci, M., Jolivet, G., & Van den Berg, G. J. (2009). Active labor market policy effects in a dynamic setting. *Journal of the European Economic Association*, *7*, 595–605.
- Dorsett, R. (2006). The new deal for young people: effect on the labour market status of young men. *Labour economics*, *13*, 405–422.
- Ehlert, C. R., Kluve, J., & Schaffner, S. (2012). Temporary work as an active labor market policy: Evaluating an innovative activation program for disadvantaged youths. *Economics Bulletin*, *32*, 1765–1773.
- Eichhorst, W., & Rinne, U. (2018). Promoting youth employment in europe: Evidence-based policy lessons. In *European Youth Labour Markets* (pp. 189–204). Springer.
- Fredriksson, P., & Johansson, P. (2008). Dynamic treatment assignment: the consequences for evaluations using observational data. *Journal of Business & Economic Statistics*, *26*, 435–445.
- Goldsmith, A. H., Veum, J. R., & Darity Jr, W. (1997). Unemployment, joblessness, psychological well-being and self-esteem: Theory and evidence. *The Journal of Socio-Economics*, *26*, 133–158.
- Gregg, P., & Tominey, E. (2005). The wage scar from male youth unemployment. *Labour Economics*, *12*, 487–509.
- Grotti, R., Russell, H., & O’Reilly, J. (2018). Where do young people work? *Youth Labor in Transition*, *33*.
- Guzi, M. (2014). An empirical analysis of welfare dependence in the czech republic. *Finance a Uver: Czech Journal of Economics & Finance*, *64*.
- Hora, O., & Sirovátka, T. (2020). Why targeting matters: The apprenticeship program for youth in the czech republic. *Social Policy & Administration*, .

- Horn, D. (2016). The effectiveness of apprenticeship training: A within-track comparison of workplace-based and school-based vocational training in Hungary. *Social Science Research*, *55*, 139–154.
- Lombardi, S., van den Berg, G. J., & Vikström, J. (2019). Empirical monte carlo evidence on estimation of timing-of-events models, .
- Lúbyová, M., & Van Ours, J. C. (1999). Effects of active labor market programs on the transition rate from unemployment into regular jobs in the Slovak Republic. *Journal of comparative economics*, *27*, 90–112.
- Micklewright, J., & Nagy, G. (2010). The effect of monitoring unemployment insurance recipients on unemployment duration: Evidence from a field experiment. *Labour Economics*, *17*, 180–187.
- Muller, P., Klaauw, B., & Heyma, A. (2017). Comparing econometric methods to empirically evaluate job-search assistance. *Tinbergen Institute Discussion Papers*, *19*.
- Mytna Kurekova, L., Salner, A., & Farenzenová, M. (2013). Implementation of activation works in Slovakia. evaluation and recommendations for policy change. *Evaluation and Recommendations for Policy Change: Final Report (December 31, 2013)*, .
- O’Higgins, N. (2012). This time it’s different? youth labour markets during ‘the great recession’. *Comparative Economic Studies*, *54*, 395–412.
- Scarpetta, S., Sonnet, A., & Manfredi, T. (2010). Rising youth unemployment during the crisis, .
- Schmillen, A., & Umkehrer, M. (2017). The scars of youth: Effects of early-career unemployment on future unemployment experience. *International Labour Review*, *156*, 465–494.
- Stefanik, M. (2018). DIFFERENT EARLY CAREER WORKPLACE EXPERIENCE-DIFFERENT FUTURE EMPLOYMENT CHANCES EVALUATING THREE PROGRAMS SUPPORTING WORKPLACE INSERTIONS AVAILABLE TO YOUNG JOB SEEKERS IN SLOVAKIA (electronic version). *Institute of Economic Research - Working papers*, *100*. URL: <http://ekonom.sav.sk/uploads/journals/377{ }wp{ }2018{ }stefanik{ }final.pdf>.
- Štefánik, M., Karasová, K., & Studená, I. (2020). Can supporting workplace insertions of unemployed recent graduates improve their long-term employability? *Empirica*, *47*, 245–265.
- Štefánik, M. et al. (2014). Estimating treatment effects of a training programme in Slovakia using propensity score matching. *Ekonomický časopis*, *62*, 631–645.
- Thomas, L. E., Yang, S., Wojdyla, D., & Schaubel, D. E. (2020). Matching with time-dependent treatments: A review and look forward. *Statistics in Medicine*, .
- Topel, R. H., & Ward, M. P. (1992). Job mobility and the careers of young men. *The Quarterly Journal of Economics*, *107*, 439–479.
- Verick, S. (2009). Who is hit hardest during a financial crisis? the vulnerability of young men and women to unemployment in an economic downturn, .
- Vikström, J. (2017). Dynamic treatment assignment and evaluation of active labor market policies. *Labour Economics*, *49*, 42–54.