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EXPLORING A LONG ADMINISTRATIVE DATABASE: AN EVALUATION OF
SHORT TRAINING PROGRAM FOR THE UNEMPLOYED

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Abstract

This study evaluates the impact of a Portuguese short training program, *Vida Ativa*, created in 2012 for the unemployed. ALMPs represent a large financial effort for the Government, hence, it is important to measure their effectiveness. The dissertation pursues an analysis of administrative data of IEFP from 2012 to 2019. An OLS analysis assesses the effects that the program has on unemployment spell duration after participation and on recurrence of unemployment. The results on duration show that the program increases duration of the unemployment spell, however, it decreases the probability of re-unemployment. Limitations imply caution in interpretation.

Keywords: Labour Economics; Unemployment; ALMPs; Policy Evaluation; Training Programs; Portugal

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1. Introduction

Especially in the period after the 2008 financial crisis, the unemployment rate in Portugal was high, and above the EU average. The Employment Service of the Portuguese Government, IEFP (*Instituto do Emprego e Formação Profissional*), was created in 1979 with the mission of promoting the creation and quality of employment and fighting unemployment through the implementation of the Active Labour Market Policies (ALMP) proposed by the government, such as professional training. IEFP (2022).

This study aims to evaluate the effectiveness of a short-term training program, *Vida Ativa*, created in 2012 to increase the skills and qualifications of the unemployed. The main goal of this analysis is to answer the research question “What is the impact of the *Vida Ativa* programme on the unemployment spell length and on subsequent unemployment history (specifically in re-unemployment)?”.

ALMPs represent a large financial effort for the Portuguese Government. In the last decade, the Government invested annually between 1.25% of GDP in 2019 and 2.33% in 2013 (OECD (2022b)). Average expenditure in ALMP was 651 million € between 2011 and 2015, a period in which supported individuals increased by 45% (IEFP (2015)). Training programs represent an important part of ALMP investment, according to IEFP (2019), more than 50% of IEFP spending in labour market interventions was for professional training (around 261 million € in 2019). Furthermore, training programs have high dropout rates (15.2% in our dataset), increasing the cost of the courses per person.

Despite being financially significant, Active Labour Market Policies in Portugal are only evaluated in few studies. The main available studies are Costa Dias et al. (2012), published by the University of Porto in 2012, and another by OECD in 2017 OECD (2017). Hence, this investigation about the *Vida Ativa* program is new and important to the literature as it contributes to a limited evidence base regarding labour market interventions.

The study draws on IEFP data from Amadora Employment Centre, one of eighty employment centres of the IEFP national network, and one of the largest. In December 2019 it was the third leading centre in professional training, following Porto and Lisboa centres, encompassing 4.5% of the total number of jobseekers covered in Portugal (IEFP (2019)).

Finally, the rich dataset used, has a large amount of information about the employment and unemployment history of everyone registered in the Employment Service in Amadora. This type of dataset, in Portugal, has been little analysed, the main two studies found were the 2012 evaluation, Costa Dias et al. (2012), referred before, and Martins et al. (2014). Moreover, recently the Portuguese Central Bank (*Banco de Portugal*) has been working with IEFP, cleaning and preparing a similar database for the whole country, to make it available for researchers and future studies, being this one a preliminary version of what type of evaluations can be done with that data.

To assess the impact of the Vida Ativa program, the dissertation will continue with international literature on ALMPs, especially training programs, followed by background about the Portuguese context before the policy was introduced. Then the Vida Ativa program will be explained, and afterwards, the method used will be described. In the main section, the empirical results regarding the effects of Vida Ativa will be presented and interpreted, followed by potential limitations. The document ends with a conclusion, followed by bibliography and some annexes that may be used to deepen the analysis.

2. Literature Review

After the global economic crisis in 2008, unemployment became a problem of great importance for the OECD countries. According to Brown et al. (2012) governments have been facing it through active labour market programs (ALMPs) such as subsidized employment, training programs, and employment services. Furthermore, as countries' budget constraints were

tighter, and deficits higher, the need to find the most cost-effective ALMP is crucial. Several studies have been internationally made on this topic, some studying specific countries and policies, others through meta-analyses. This section will be focused on the international results of training programs, trying to anticipate possible results of our analysis, or to compare some differences afterwards. A general analysis of training program impacts will be followed by a segregated analysis based on gender, age, and economic status, finishing with the study of the diverse effects of the programs in recessions versus expansions.

As ALMPs are created to reduce unemployment, their effectiveness should be related to the reduced unemployment for the participant group. Card et al. (2010) in a meta-analysis study, find that on-the-job training programmes have lower effectiveness in the short-run than the positive relative impacts found after two years. The lower short-run effect might be explained by the lock-in effect, which is referred to in various studies. As described by Lechner et al. (2006), the lock-in effects happen when, during the training program, jobseekers reduce their job searching effort, receiving fewer job offers, which decreases the probability of employment in those periods - jobseekers are “locked-in” the program. In this same paper lock-in effects of training are found in the short run, and in medium and long run positive employability and earnings effects are found in the 10-year period considered.

Crépon et al. (2007) defends that training could act as a signal towards potential employers, hence decreasing the length of the unemployment spell. However, training might also increase reservation wages, resulting in longer unemployment. The results of this study in France, show no significant effects of training courses in reducing unemployment spells. They also find that due to lock-in effects, long training programs (more than one year) increase unemployment spell duration when compared to shorter options. This paper further investigates the effects of training programs on the duration of the subsequent employment spell, in this case, long courses have positive effects (increases the duration of the following employment spell).

The World Bank, in Betcherman et al. (2004) concludes that the design of the program is critical for ensuring favourable outcomes, from a new wave of evaluations they got that some training programs have positive results in employment probabilities but offer little benefit for participants. An OECD review, Martin et al. (2001), concludes that training programs should tighten the target participants; keep the programs small in scale; deliver qualifications or certificates recognized in the market and have strong on-the-job component.

The diverse effects of these policies on different demographic groups (gender, age, economic status) are important to analyse, as made in several studies. Jenkins (2004) focuses on women finds that lifelong learning which leads to qualification is strongly associated with a higher probability of unemployed women returning to work. Other studies find that women benefit more from training programs, or bring more consistent results than men, as Card et al. (2015), Martin et al. (2001) and Betcherman et al. (2004). To add up to this, Arellano (2010) finds that training programs are effective in reducing unemployment duration, however, gender segregation in the labour market persists, since women are at disadvantage in unemployment levels, and they only benefit from the courses, slightly more than men. Other papers find no gender differences in the effect of training, as Card et al. (2010) meta-analyses, and Crépon et al. (2007), in France. Yet the latter finds larger positive effects for lower educated people.

Across age groups, lower effects for courses to the youth were found by Card et al. (2010) compared to untargeted programs. Similar results are found in Kluve (2010), Card et al. (2015) and Betcherman et al. (2004), which reinforces that youth problems are faced more efficiently through earlier education interventions.

ALMPs usually emerging during times of high unemployment, increases the need to evaluate differences in their consequences, especially in training programs, happening recessionary vs expansionary periods. Card et al. (2015) finds three studies where this evaluation is made, and all three suggest that ALMP are more effective in periods of high unemployment rate. To

justify that training programs are more effective in downturns, Lechner et al. (2006) explain that when unemployment is high, there are fewer jobs available, hence the lock-in effect of training has lower opportunity cost. They suggest that in expansions governments decrease the volume of training, more than proportionally to the reduction in the unemployment rate, and in recessions, the unemployed training share must increase.

Betcherman et al. (2004) highlights the fact that even if employment effects are not significant, some ALMP may have other positive consequences in the labour market, such as keeping the long-term unemployed in the labour force and decreasing dependence on unemployment benefits. There might also exist positive outcomes for the most disadvantaged workers, breaking down the negative consequences of the “outsider” phenomena. Hence Policies should have clear priorities and targets, for the evaluation to be correct on the criteria used.

3. Background

From the 2008 Financial Crisis, a crisis in the Portuguese labour market emerged. According to OECD (2017), total employment fell by 15% between the middle of 2008 and early 2013. Figure 1 represents the quarterly unemployment rate path of the last 20 years, comparing Portugal and the EU average. During the depression years, the EU average unemployment rate rose to more than 10%, and worse consequences happened to Portugal where unemployment rate surpassed 15%, attaining its peak in 2013 first quarter (16.8%). After the recession years, Portuguese unemployment rate re-met the EU average, decreasing its values to below 10% (6.99% in 2017) OECD (2022a).

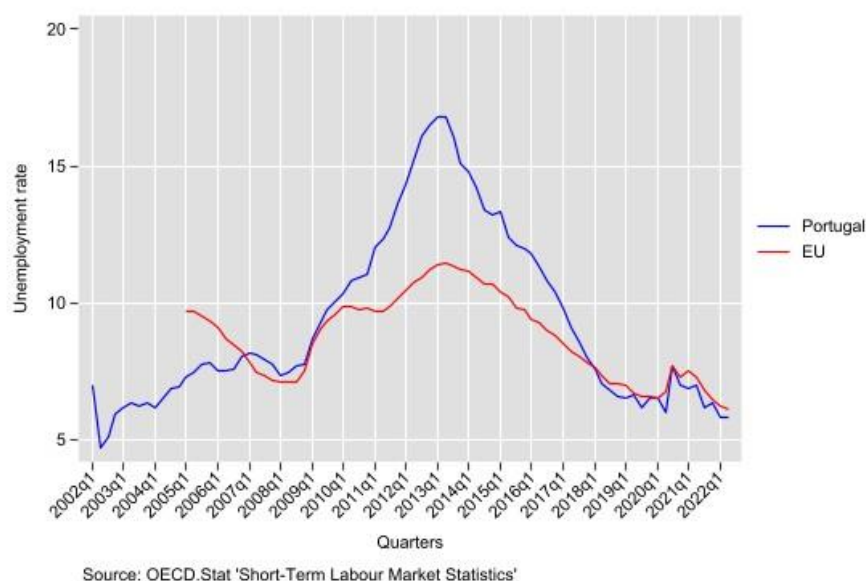


Figure 1: Quarterly Unemployment Rate in Portugal and EU Average

At the time of crisis, the Portuguese Labour market was characterized by high segmentation¹, a large share of temporary workers Pedrosa (2014) and low skilled labour supply ILO (2018). Facing the high level of unemployment, and those caveats of the market, the Portuguese government adopted several labour market policies, between 2011 and 2015. Employment protection Legislations and unemployment benefits system converged to a system more aligned with practices across OECD countries (OECD (2017)); Active Labour Market Policies were introduced tightening the assignment of unemployment benefits and providing labour market services to activate the unemployed individuals more effectively with more personalized support (ILO (2018)). There were also reforms in the collective bargaining system, wage moderation, as well as additional flexibility to adjust the working time (ILO (2018)).

Different reforms with different goals, created an overall positive effect, improving in both employment and unemployment rates. Part of this progress was probably a consequence of training programs. Lower opportunity costs in periods of high unemployment might explain the importance of training initiatives in Portuguese spending on ALMPs. In 2012 “Formação

¹ Persistent differences in the labour conditions (stability, career prospects) of individuals in the labour market, that are not driven by differences in productivity

Transversal” and “Vida Ativa” short-term training programs were introduced for the unemployed. The first with the goal of strengthening soft skills and job search capabilities, and the latter to provide job-oriented instruction, validating participants’ skills according to the official qualifications standards: “Quadro Nacional de Qualificações” (QNQ). The number of participants grew significantly in both programs, in the subsequent years after implementation. From this stage on, the study will be focused on Vida Ativa program, one of the programs with more participants.

3.1. The “Vida Ativa” Program

With the goal of increasing qualification and promoting employability of active population, the short-term training program “Vida Ativa” was implemented in 2012 by the Portuguese Government. It aims to reinforce the matching of vocational education with the labour market and jobseekers’ needs, by increasing their professional, social and entrepreneurial skills combined with official validation of previous competences’ qualifications (Decreto-Lei nr. 203/2013 (2013)). Following the program to launch the Public Employment Services (*Programa de Relançamento do Serviço Público de Emprego*) (Decreto-Lei nr. 20/2012 (2012)), including more closely support to the unemployed, the Employment Plan should be adjusted to the jobseekers’ needs and potential, with special attention to the long-term unemployed. VA also sought to act on the findings of the FEP report, that indicated that there were many training courses of a very long-term duration, with few participants at their end (because of drop-outs, retirements, and exits to employment), leading to high costs per participant.

“Vida Ativa” program implementation strategy includes three different actions:

- a) Short-term **modular training courses**
- b) **On-the-job training**, to complement the modular training or skills previously achieved

- c) **Official validation and certification of competences** acquired in previous formal or informal experiences

Exclusively for people registered at the Portuguese Employment Centres/Services of IEFP (*Instituto do Emprego e Formação Profissional*), the initiative prioritizes jobseekers who are jobless for more than six months²; without the ninth grade or with unadjusted qualification faced to the labour market, and single parent or being one of both parents unemployed. In December 2013 a specification of the program, named *Vida Ativa Jovem*, was introduced, focused on entrepreneurship and programming trainings for young people, from 18 to 29 years old. Later, in 2016 a new emphasis was given to the least qualified with higher risk of social exclusion, creating the program *Vida Ativa – QUALIFICA +*. This new strategy created specific paths for this type of population, focusing on basic skills and technology training, integrating personal, social, and professional dimensions. (IEFP (2018))³.

All the registered unemployed in Portugal have their own Personal Employment Plan (Plano Pessoal de Emprego – PPE), which consists in a bundle of steps needed for job market (re)integration. Training programs are part of this plan, hence, *Vida Ativa* is one of the possible paths to take. By own initiative or suggested by an employment caseworker, the candidate should pre-enrol in a course, mentioning their interests and aspirations. After the application period, the training entity (private or public entity with the needed training certification), depending on the interests, previous competences and profiles of the applicants, creates the training groups (classes of 20 to 30 people) for a course of a specific subject meeting the job market needs. (IEFP (2013))

The different courses available represent distinct qualifications levels, hence the training classes are constructed matching the previous capabilities, qualification, and specific program

² However in the used dataset around 70% of participants do the program until the 6th month of unemployment

³ In our data, less than 1% of participants made “VA Qualifica +”, and around 3% did “VA Jovem”, which justifies the non-distinction in the analysis.

of the candidates with the degree and area of the training program. The available programs are: Specific Technological Training (skills for a particular job); Basic or Sociocultural Training (equivalence to basic or high school level); Behavioural Training (quality, safety, hygiene, and personal relationships); Entrepreneurship Skills Training (foster independence on (re)integration in the job market); Basic Skills Training (training for inclusion of the least qualified).

The courses last from 25 to 300 hours, adding an extra component of “on-the-job training” for some courses longer than 100 hours, especially for the least qualified. The program is taught in a work regime, which might be part-time every day, or full-time two to four days a week. During the teaching period, participants have the duty to keep actively looking for a job. (IEFP (2018)) This requirement may be important to minimise the lock-in effects typically present in training ALMPs.

According to regulation (IEFP (2013)), the IEFP should supervise and evaluate the program in terms of the integration process; target population; competences’ increase; reinforcement of the active job search, aiming to improve the strategy increasing effectiveness of the program. However, until today no IEFP report was publicly presented for that purpose. Only OECD, in 2017, published a preliminary assessment of the Portuguese Active Labour Market Policies (ALMP) (OECD (2017)), including an evaluation of this program. To address this evaluation gap, the present study, will analyse the Vida Ativa program in the period from 2012 to 2019, starting by data description in the next section.

4. Data

The study emerges from four comprehensive administrative databases of Amadora IEFP job centre, covering the period from December 2012 to October 2019, which are merged. Each database contains different information about the jobseekers:

- (1) **Registration** of the unemployed individuals enrolled in the Amadora employment centre in each month
- (2) Registration of **placements** in jobs offered through IIEFP (end of unemployment spell because of transition to employment offered by the centre)
- (3) Registration of unemployment **cancellations** (end of unemployment spell driven by a different reason than matching job offered by the job centre)
- (4) Records of the **Vida Ativa** program (course participants, start/end dates, area, and reason for leaving the course)

Similar to the one used by Costa Dias et al. (2012), the IIEFP database contains, all the historical information of each unemployed during the available time range. It includes demographic information of the unemployed, such as birth date, sex, nationality, education plus previous and pretended job area⁴ (it does not have information on marital or parental status, nor on household members employment situation, neither on economic status).

Initially, the database had as many observations per person (identified through a unique id value) as the number of months, covered in the data, that they were registered in the employment service, plus the job placement or annulation of unemployment spell and the VA programs. Hence, for the analysis to be simpler, data was transformed to only one observation per person. For each individual, demographic characteristics were collected from the first record they appear in the database (first registration in IIEFP from December 2012), and more variables were created to summarize their historical information of unemployment (unemployment spells start and ending dates, participation or not in VA training program and its features). The raw database (before it was simplified) had 1,153,883 lines, representing

⁴ According to ‘Portuguese Jobs’ coding (CPP: Classificação Portuguesa de Profissões)

88,726 persons. To calculate the impact of Vida Ativa program on the outcomes of interest, the data had to be cleaned further.⁵

From this stage on, this first unemployment spell recorded in the database will be named “first spell”. The analysis is centred on the VA courses in which jobseekers participated during the “first spell”, so that its effects could be studied in each person’s current and subsequent unemployment spells. Persons whose first spell lasts longer than 82 months (length of the time range available) were deleted (Appendix A. 2.). Persons who did more than one VA training program in the first spell were removed, to prevent overestimation of results. Finally, people whose first spell ended for any reason that makes it impossible for the centre to have subsequent data, were also removed (transfer of employment centre; emigration; retirement; prolonged or permanent incapacity; death). At the end, the sample contains 59,009 observations (distinct individuals), which will be described in the following section.

4.1. Descriptive Statistics

Table 1 presents the descriptive statistics of the selected sample. The statistics are divided into individuals who participated in the Vida Ativa program in the first spell (13.17%) and those who did not (86.83%), plus an additional column representing the entire sample.

In the whole sample, there are almost as many men as women unemployed registered in Amadora employment centre (49.1% and 50.9% respectively). Furthermore, data suggests that

⁵Although registrations available start in December 2012, some unemployment spells started before that date. People whose unemployment spell started more than three years (the maximum duration of unemployment benefits) before December 2012 were removed (as these may be individuals with very particular profiles), while the remaining cases were kept. Furthermore, people with more than 10 unemployment spells were excluded (Appendix A. 1.) as well as those with training courses done before being registered at the employment centre (or without contemporaneous registration). Finally, there is the possibility to be employed, but registered in IEF, being “actively looking for another job” - these observations are excluded, since the analysis is focused on the unemployed.

women are slightly more prone to participate in Vida Ativa Program than men since their proportion is higher among program participants (52.7%) than for the whole sample.

	Participated in Vida Ativa Program in first spell		
	No	Yes	Total
Total	51239.00	7770.00	59009.00
	86.83	13.17	100.00
Gender			
Male	25273	3672	28945
	49.3%	47.3%	49.1%
Female	25966	4098	30064
	50.7%	52.7%	50.9%
Age Group			
< 29	20610	2136	22746
	40.2%	27.5%	38.5%
30-39	13155	1912	15067
	25.7%	24.6%	25.5%
40-49	9818	1896	11714
	19.2%	24.4%	19.9%
50 +	7656	1826	9482
	14.9%	23.5%	16.1%
Nationality			
Portuguese	39118	6409	45527
	76.3%	82.5%	77.2%
Foreign	12121	1361	13482
	23.7%	17.5%	22.8%
Age	35.06	38.99	35.57
School	9.52	9.43	9.51
Number of Spells	1.65	1.52	1.63
Length of 1st spell (months)	11.46	21.25	12.75

Table 1: Descriptive Statistics

Age cohorts were created following the unemployment subsidy framework, according to Segurança Social (2022), the unemployment benefits increase with number of years of previous work, and according to the age cohort (less than 29, 30 to 39, 40 to 49 and, more than 50). The largest portion of unemployed individuals in this group is less than 29 years old (48.5%), furthermore, 25.5% are between 30 and 39, 19.9% between 40 and 49 and above 50 years old are 16.1% of the sample. Inside participants' group, individuals are more evenly distributed across ages and the average age is higher (38.99 compared to 35.57), suggesting that older people are more likely to participate in this training program than young. Older people in

Portugal show obsolete or low levels of education (OECD (2017)), which could be seen as a motivation for them to take the training courses.

On the complete sample of unemployed, 77.2% are Portuguese, and the remaining 22.8% are Non-Portuguese. Besides Portuguese people, the largest portions of the sample are for Cape-Verde (7.88%), Guiné-Bissau (4.05%) and Brazil (3.68%). The proportion of foreigners among program participants is slightly lower (17.5%) than in the full sample, a possible explanation for the difference could be language barriers, which might also justify small magnitude of the difference, since most of the foreigners are from Portuguese-speaking countries.

On average, individuals in the sample have 9 complete years of education (9.51). Vida Ativa program participants' mean education is somewhat smaller (9.43). Lower-educated people might be more motivated to participate in the courses to increase their official qualification.

From the unemployment history, built for each individual, the average number of spells per person is 1.63, and it is smaller for the VA participants (1.52). Fewer spells for training participants might reveal positive consequences of the courses, or may be related to other characteristics, common to program participation. Interestingly, duration of first spell in months, which will be on the focus of this study analysis, is much higher for VA participants (21.25) than for non-participants (11.46) and the overall group (12.75). As seen in the literature, lock-in effects will result in short-run lower employability when attending training programs, Card et al. (2010), potentially increasing duration of unemployment due to the lower job searching during the training period. Further in this document, the relationship between VA participation and duration of spell will be explored, evaluating if the higher length of first spell among program participants is a pre-condition to program participation or a consequence.

After 12 months of the end of the program the participants employability rate is 81.22%, meaning that after finishing the program, 81.22% of participants leave unemployment (Appendix B. 4.)

5. Method

To estimate the effects of participation in Vida Ativa program in labour outcomes, the analysis will be based on an equation as follows:

$$Y_i = c + \alpha T_i + \beta X_i + \varepsilon_i \quad (1)$$

Where Y_i is the outcome variable of interest; T_i is the dummy variable representing the treatment (VA_1), its value is 1 when the individual is treated (participated in Vida Ativa Program in first spell), and 0 if non-treated (non-participant in Vida Ativa courses but might be participant in other programs offered by IEFP). α represents the parameter of interest, the effect that being treated exerts in the dependent variable. Its interpretation should be cautious since less skilled, more disadvantaged, or socially excluded jobseekers, might be more frequently advised to participate in the program, at the same time, more proactive individuals might be more prone to voluntarily apply to the courses. These characteristics will probably be related to easiness in job finding, determining variations in the outcome variable. Consequently, the accuracy of this coefficient depends on the importance of the possible selection of participants.

X_i represents a vector of observable covariates (exogenous demographic information) that will be controlled for, and β a vector of their respective impact on Y_i . Finally, ε_i is the error term, other forces that might be determining the dependent variable differences, not included in the analysis, as for example unobserved personal attributes (as socioeconomic status, marital and parental status, initiative, persistence, etc).

Following the goals of the Portuguese Employment Service of fighting unemployment, the analysis will be divided in the short-run and long-run impact of the program. The short-run will be evaluated through the impact of the program in the duration of the first unemployment

spell⁶ (in which individuals participate or not in the program), and the long-run outcome will be measured by the probability of recurrence of unemployment, after finishing the first spell⁷. The controls (X_i) used were the demographic information available for each individual: gender, age, nationality (Portuguese or foreign) and years of schooling. For the analysis of age, as referred in the Descriptive Statistics section, individuals were divided in the same age cohorts for which the unemployment benefits duration change, each cohort has a correspondent dummy variable (the base dummy, from which the others were compared, is the youngest cohort - under 29y). These variables will be important to interpret out of the program effect, to explore how do the different personal characteristics affect the outcome variables. Finally, control for previous job area (according to major group of CPP code) will be added (J_i), as well as control of year fixed effects through dummy variables for the spell starting year (vector D_{ji}).

First, the simplest version of the main regression was calculated through OLS:

$$Y_i = c + \alpha VA_1_i + \beta X_i + \gamma_1 J_i + \gamma_2 D_{ji} + \varepsilon_i \quad (2)$$

$$X_i = \beta_1 fem_i + \beta_2 foreign_i + \beta_3 age_30_39_i + \beta_4 age_40_49_i + \beta_5 age_50_i + \beta_6 school_i \quad (3)$$

Furthermore, interactions of the treatment variable (VA_1) with the controls will be added to evaluate the heterogeneity of the effects across the different groups (after named vector I_{ji}).

$$Y_i = c + \alpha_1 VA_1_i + \beta X_i + \delta_1 VA_fem_i + \delta_2 VA_foreign_i + \delta_3 VA_30_39_i + \delta_4 VA_40_49_i + \delta_5 VA_50_i + \delta_6 VA_school_i + \varepsilon_i \quad (4)$$

⁶ The spell's duration reflects a highly skewed distribution, hence, for statistical robustness the logarithms of the variable will be used ($\log_dur_spell1$). This will change the interpretation of results, as the coefficients will represent percentage change in spell length motivated by unit changes in the regressors.

⁷ The outcome variable will be a dummy variable representing if the individual had second spell of unemployment or not ($spell2$).

5.1. Spell Duration (short-term) analysis

In the short-term analysis we want to evaluate how the program will influence the time until finding a job. Hence, only the number of months after taking the Vida Ativa course, until end of unemployment should be considered. To include this factor in the regression, dummy variables for each month in which the courses were taken are added to the model

In these regressions, the results should be interpreted depending on the timing of the VA within the spell. Hence the counterfactual should be restricted for each month analysed. Individuals who participate in the program in the n^{th} month of unemployment, should be compared to non-participants who have been unemployed for at least n number of months, so that the outcome compared will be the duration of unemployment after those n months. This is referred in Lalive et al. (2008), control group must be individuals who have neither exit unemployment nor entered the treatment at the moment treated individuals take the program. If the effects differ from different timings, it provides evidence on the optimal timing of VA participation in terms of duration of the first unemployment spell – should VA be assigned mostly in the first months or later the spell? This specification uses the following model:

$$\log_dur_spell1_i = c + \alpha VA_month *_i + \delta_{ji} I_{ji} + \beta X_i + \varepsilon_i \quad (5)^8$$

For the short-run analysis, the sample will be restricted to individuals whose first spell started until December 2016 (50.754 observations). Since we are analysing the results until October 2019, this restriction will give enough time (almost three years) to participate or not in the program, end the first spell, and experience Vida Ativa consequences.

5.2. Recurrence (long-run) analysis

Recurrence is evaluated using a dummy variable, *spell2*, as dependent variable. This dummy is 1 if the individual has more than one spell of unemployment, and 0 if not. The outcome of

⁸ The * in the dummy variable represents each month analysed

interest (α) will, in this case, represent how the program changes the probability of returning to unemployment.

$$spell2_i = c + \alpha VA_1_i + \delta_{ji} I_{ji} + \beta X_i + \varepsilon_i \quad (6)$$

In this analysis, the sample was restricted to individuals who finished unemployment until December 2018 (54.507 observations), so that they have 10 months to return to unemployment, if that is the case.

After considering all previous models, the results and their limitations will be explored in the following sections.

6. Results

In this section, findings from previous models will be presented and interpreted, driving conclusions about the Vida Ativa program effectiveness. After, limitations of data, model and results, will be referred to clarify the caution needed when driving conclusions, and how the results could be enlarged.

Table 2 presents the estimates from the different models described in the previous section. The first three columns present three regressions of the short-term analysis, and the last two are the analysis of the probability of recurrence.

Before the analysis of the treatment variable, it is valuable to observe the effect of the exogenous demographic characteristics on the dependent variables. Being a woman increases spell duration by around 2.8%, on average, and it also increases the probability of recurrence by 2.6%. Non-Portuguese individuals are associated with shorter spells (around 16.6% lower), which might be explained by their lower reservation wage allowing them to accept jobs that the Portuguese are not open to. Another possible explanation is that foreigners might have worked for short periods or didn't have a declared job before (in Portugal or in a country with Social Security agreement with Portugal (Segurança Social (2021))), receiving unemployment

benefit for shorter time (decreasing reservation wage). Their probability of unemployment recurrence is higher than for the Portuguese, suggesting less stable jobs for foreigners.

Table 2					
VARIABLES	(1) log_dur_spell1	(2) log_dur_spell1	(3) log_dur_spell1	(4) spell2	(5) spell2
VA_1	0.934*** (0.010)		1.130*** (0.034)	-0.043*** (0.006)	-0.042* (0.023)
VA in month 1		0.258*** (0.080)			
VA_fem			0.066*** (0.019)		-0.007 (0.012)
VA_foreign			0.035 (0.024)		0.036** (0.017)
VA_30_39			-0.017 (0.025)		-0.014 (0.017)
VA_40_49			-0.072*** (0.026)		-0.011 (0.017)
VA_50			-0.113*** (0.029)		-0.036* (0.018)
VA_school			-0.020*** (0.003)		0.001 (0.002)
fem	0.028*** (0.008)	0.039*** (0.008)	0.020** (0.009)	0.026*** (0.004)	0.027*** (0.004)
foreign	-0.166*** (0.009)	-0.190*** (0.010)	-0.169*** (0.010)	0.065*** (0.005)	0.061*** (0.005)
age_30_39	0.146*** (0.010)	0.181*** (0.011)	0.149*** (0.011)	-0.022*** (0.005)	-0.021*** (0.006)
age_40_49	0.270*** (0.011)	0.343*** (0.012)	0.281*** (0.013)	-0.042*** (0.006)	-0.041*** (0.006)
age_50_	0.452*** (0.013)	0.557*** (0.014)	0.472*** (0.015)	-0.117*** (0.007)	-0.111*** (0.007)
school	0.010*** (0.001)	0.012*** (0.001)	0.013*** (0.001)	-0.010*** (0.001)	-0.010*** (0.001)
Constant	3.469*** (0.041)	3.445*** (0.039)	3.439*** (0.041)	0.309*** (0.014)	0.310*** (0.014)
Previous Job Area	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	50,574	50,574	50,574	54,507	54,507
R-squared	0.460	0.389	0.461	0.035	0.035

Notes: Robust standard errors are in parentheses and stars represent significance of the coefficient (*** p<0.01, ** p<0.05, * p<0.1).

“Previous Job Area” and “Year fixed effects” mean that the area of the previous job and the year when unemployment spell started, respectively, are being controlled for. The number of observations from 1st to 3rd regression represent people who have started first registered unemployment spell until December 2016; for 4th and 5th regressions, observations are restricted for people who ended unemployment spell before January 2019.

Table 2: OLS Estimations

As seen before, unemployment insurance length increases with years working and age, according to the age cohorts being used in the analysis. Hence, what the table reveals must be associated with this rule. Comparing to the base cohort (under 29y), each older cohort is associated with longer unemployment spells (coefficients are significant and increasing with

age groups). The probability of returning to unemployment decreases with age, which might resemble the proximity to retirement, or more stable jobs as individuals get older.

Higher schooling is probably associated with higher reservation wage, which might be behind the slightly longer unemployment spells (an extra year of schooling increases spell length by approximately 1%, on average, *ceteris paribus*). Moreover, higher education suggests a more stable job, which will decrease the probability of re-unemployment (one extra year of school decreases probability of having a second spell of unemployment by 1%, on average, *c.p.*).

Focusing on the effects of the Vida Ativa courses in **duration of first spell**, the results show that the program is associated with longer spells, after controlling for demographic information. According to results, participating in this short-term training courses increases length of unemployment spells by 154%, on average, *ceteris paribus*, comparing to non-participants ($\exp(0.934) - 1) \times 100 = 154\%$)⁹. Increase in spell length associated with training programs could represent lock-in effects, however, in this case the increase associated goes largely beyond the time of the program¹⁰. This suggests that the treatment variable is capturing other characteristics associated with program participation that have large effects on unemployment duration, revealing omitted variable bias. Decreased lock-in effects was a motivation for the implementation of these short-training programs instead of long curriculums, however this analysis is not allowing to identify their existence or not.

To get a more robust specification, the moment of participation needs to be controlled for. People who have done the program later, should not be compared to people who were not unemployed for at least the same number of months as the time until the program.

The second column of Table 2 includes the dummy variable of participating in the VA program in the first month of the unemployment spell. In this model, frequent the courses in the first

⁹ Average duration of first spell for non-program participants is 11.46 months, hence the VA would increase its length to around 22 months.

¹⁰ average VA length is 1.51 months

month unemployed significantly increases unemployment spell duration, but by a lower percentage ($\exp(25.8) - 1) \times 100 = 29.4\%$), suggesting decrease of endogeneity issues. An extra table was computed (Appendix C. 2. and Appendix C. 3.), analysing each month and restricting the sample for each regression, so that the control group is composed by people who have been unemployed for at least the same number of months as the months until program participation. This will allow to evaluate the impact that participating in program, in each month of unemployment, has in the post-program duration of unemployment. Results show that participating in the program until the third month creates a significant, but smaller than in first month, increase in post-program duration of unemployment, compared to people who have been unemployed for at least the same number of months until participants take the course. After the fourth month, the results present negative coefficients, but non-significant. These results suggest that the lock-in effects are minimized if participation is after the third month unemployed.¹¹

Furthermore, Interactions of treatment dummy with demographic variables are added in the third column of Table 2. The results reveal that being non-Portuguese and the first age cohort create no significant difference in the effects of the program. Belonging to the last two cohorts, 40-49 and older 50 years old, individuals participating in the program, on average experience a decrease the unemployment duration after the course, comparing to younger than 30 individuals.

Being more educated, decreases the magnitude of the negative short-run effect of the program. Interestingly, lower schooling levels are not associated with larger reward from the program. Moreover, being a woman will worsen the effects of the program. Arellano (2010) shows that in Spain, gender asymmetries in unemployment were not surpassed by a training program, in

¹¹ This conclusion considers no endogeneity. Analysis of later months should represent more similar individuals, as the sample is restricted to longer spells.

this case, in the short run, they are worsen by the Vida Ativa program, as participant woman increase unemployment duration.

For the **recurrence analysis**, the effect of the program shows to be positive, as the coefficient of participating in the program is negative and significant, decreasing the probability of re-unemployment by 4.3 percentage points, on average, c.p.. As seen before, the treatment variable might be capturing unobserved characteristics that will misestimate the results of the program. The results could be underestimated, if people participating in the program show to be less proactive and resilient, hence, more prone to unemployment, or overestimated, if treated individuals have tendentially longer first spells.¹²

The heterogeneous effects reveal that, similarly to previous studies, as Card et al. (2010) and Crépon et al. (2007), there are no significant gender differences in the program effects. As well as no significant difference in the effects according to age, or education level. Only being a non-Portuguese participating in Vida Ativa courses will annulate the effect of the program on decreasing recurrence (+0.6pp), meaning that being a foreign participant won't decrease probability of re-unemployment through the program.¹³

6.1. Limitations

The credibility of previous models relies on the exogeneity assumption of the variable of interest. As Arellano (2010) says, “The conclusions are conditional on the potential existence of endogeneity and unobserved heterogeneity”. As referred before, individuals participating in VA programs might lower skilled or non-proactive and indicated to take the courses by the

¹² Following the reasoning of people who have longer spells are more similar in unobserved characteristics, the regression on the probability of re-unemployment was calculated sequentially, restricting the sample for longer first spells (Appendix C. 4), which decreased the significance of VA in decreasing the probability of recurrence, if the program is taken after the first month.

¹³ These results are built using the sample described in the Data section (including the “retrospective” data of people who were still unemployed in December 2012 but started the unemployment spell before that date). The same analysis was made, but without that data (Appendix C. 5). The control for fixed effects of the year when spell started, motivated me to maintain the retrospective data. Furthermore, this “retrospective” data would represent individuals more similar among them, as their unemployment spells are longer, contributing to the accuracy of the results.

employment caseworker; or, at the same time, they might be from lower education levels, but active and decide to take the program by own initiative. For the outcome to be reliable we must assume that these two annulate each other. However, in results interpretation it was found that is probable that VA participants are associated with longer unemployment spells, which hide the program effects on unemployment spell duration, and increases uncertainty about the results on the probability of recurrence models.

Trying to surpass the endogeneity limitation, several studies in this area use Propensity Score Matching (PSM) method, however, in this case, the results would be similar, since the variables used to calculate the PS would be the same that are being controlled for in the used models. Other papers use the Survival (or Duration) models, which are the most indicated for this type of evaluations, since they allow to control for unobserved characteristics that might change probability of getting treated and the outcome variable at the same time. In this case, duration models would compare the probability of employment given that it has not occurred yet, comparing treated and non-treated for different treatment timings.

This study evaluates the impact of participating in VA in the first unemployment spell registered. As said before it was made for simplicity, and to have the longer time after program participation. However, it could be expanded to evaluate the impact of more participations across the years (not only in first spell).

Unemployed individuals registered in IEFPP may participate in several other types of programs, including other training programs. However, the used database has no information on other program participations, limiting this research to the comparison of the program with “no program or other programs”. Information of other programs participation would allow to calculate the impact of Vida Ativa in relation to non-program and compare with other ALMPs namely with long training courses, evaluation differences in lock-in and long-run effects. Furthermore, there might exist correlation of VA or non-VA with other programs participation,

that might be biasing the results analysed. Hence, other policies' database would allow for a more accurate evaluation of the program.

In this research, the impact of the program is being assessed generally, focusing on its broad impact on unemployment. However, this approach is limited, for the evaluation to be complete it must go deeper. The results should have a reason behind, hence different features of the program should be explored to find the root of the outcomes (duration of the course; if it has on the job component; class composition; matching of the courses areas with most needed areas in region labour market, and matching of the courses areas with individual interests of each person)¹⁴. Furthermore, as seen in the literature, the opportunity cost of the lock-in effects of training programs is smaller in recessions, hence, it would be interesting to differentiate the effects of the program during recessions and recovery or expansions.

It would be interesting and important to further explore the effect that the program might have on earnings, and labour contracts, hence, another limitation is the unavailability of Social Security data to merge with the IEFPP databases.

7. Conclusion

In Portugal, a significant part of the Government Budget is devoted to Active Labour Market Policies, around 2% of GDP per year in the last decade (OECD (2022b)). Particularly, around half of it was devoted to training programs. Facing this great importance, this study assessed the impact of the Vida Ativa training program for the unemployed, in unemployment spell length and in the probability of recurrence to unemployment.

¹⁴ During this study an attempt was made to build an approximation of classes, joining people who entered in the same date to the same course area. However, the approach was not taken further, since true information on classes was needed to surpass problems of late application to the courses, or more than one class in the same day (since the class sizes are not pre-determined). If class sizes are pre-determined, or there is a known limit, it would allow to infer possible exogenously determined variability in participating month or course area of the courses that would help to analyse heterogeneity of effects in these settings, discarding endogeneity issues.

Through OLS estimations, assuming exogeneity of the treatment, the results show that participation in the program is associated with longer unemployment spell in which the course is taken. Moreover, the estimations reveal that the program is also associated with lower probability of recurrence, meaning that even having a longer unemployment spell, people who take the program are less prone to return to an unemployment state.

In the first (short-term) analysis, an exploratory approach was taken, to assess if participating in the program in the first months unemployed, or later, will have differentiated impact in the length of the remaining time of unemployment. The results reveal that the program is not effective in reducing that time if participated before the fourth month of unemployment. Furthermore, following this approach, no lock-in effects were found after the third month.

This dissertation value relies on the originality of the research, focusing on variables that have not been deeply explored in Portugal. It has limitations, on the reliability on results because of endogeneity issues, but it works as a base for further research on this area, and as an example of what variables and heterogenous effects of programs might be assessed.

Finally, further analysis in this area would be important to assess the impact of this and other programs in Portugal, aiming to optimize the investment made. It would be interesting to explore how the matching of the courses' areas, with the interests and previous experience of participants, as well as with employers' interests, works. The long database allows to explore the program effects in several other outcomes, as the employment time after the program, the percentage of time unemployed, or the different reasons and effects of taking the program more than one time. The database being built by Banco de Portugal and IEFP will be a rich and long dataset that would be also interesting to match with Social Security Data, allowing for a broader evaluation of these type of program consequences, for example on type of employment contract or on earnings, (to assess if the government investment is compensated on future personal earnings).

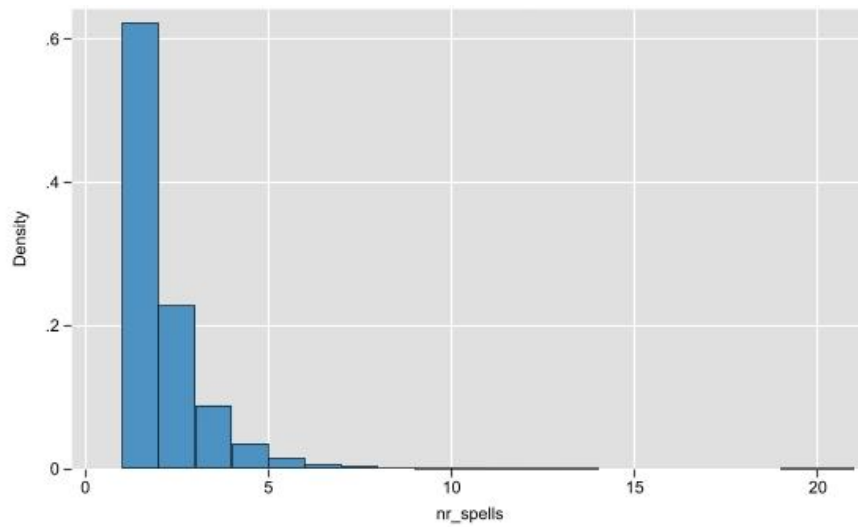
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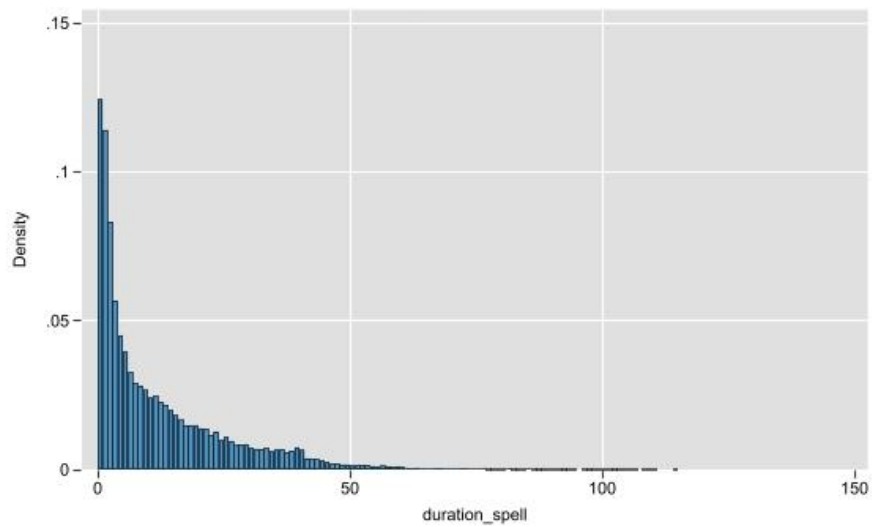
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Appendix A – For Sample construction

Appendix A.1.: Histogram of number of spells before sample restriction

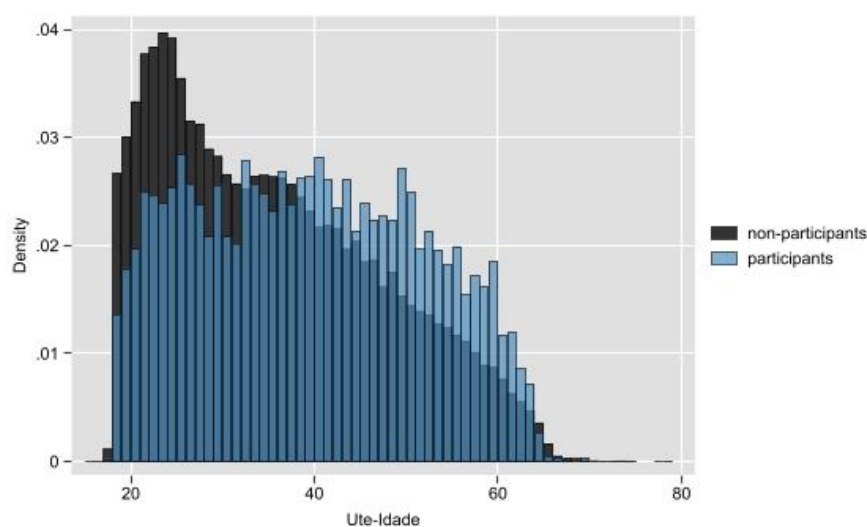


Appendix A.2.: Histogram of first spell length



Appendix B – Descriptive Statistics

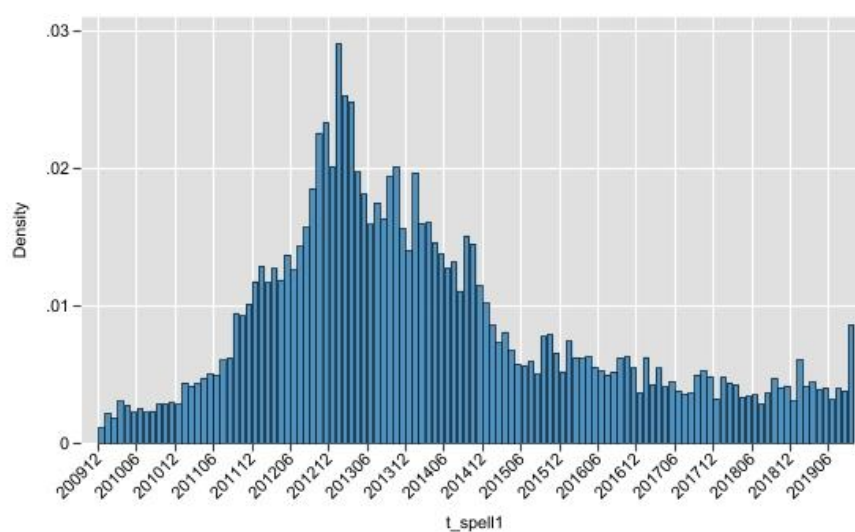
Appendix B.1.: Histogram of Age (Vida Ativa participants vs non-participants)



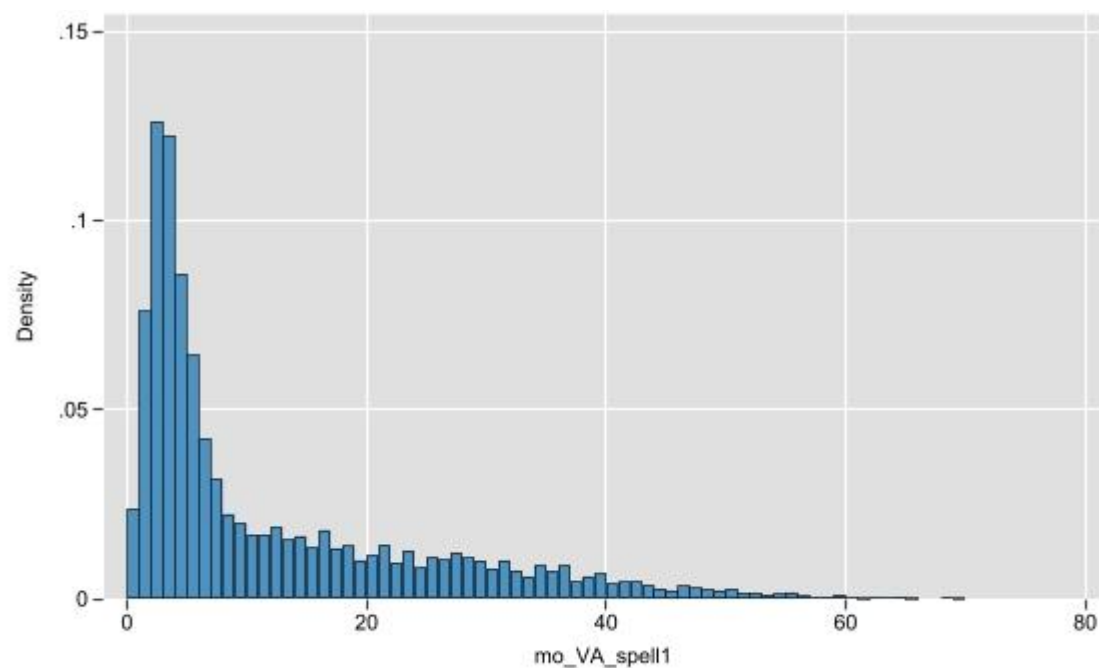
Appendix B.2.: Participants in Vida Ativa Program

Participated in Vida Ativa Program in first spell	Frequency	Percent
No	51,239	86.83%
Yes	7,770	13.17%
Total	59,009	100%

Appendix B.3.: Histogram of the starting month of first unemployment spell



Appendix B.4.: Histogram of the duration of the unemployment spell until program participation (in months)



Appendix B.4.: Employability of program participants 12 month after finishing the training

VA participants - Exited Unemployment in 12 Months	Frequency	Percent
No	1,459	18.78%
Yes	6,311	81.22%
Total	7,770	100%

Appendix C – Regression analysis

AppendixC.1.: Regression of VA participation in demographic and Job characteristics (controlling for time of unemployment spell start)

VARIABLES	VA_1
fem	0.011*** (0.003)
foreign	-0.028*** (0.003)
age_30_39	0.035*** (0.004)
age_40_49	0.071*** (0.004)
age_50_	0.103*** (0.004)
school	0.002*** (0.000)
Previous Job Area	-0.001** (0.001)
Period start spell	-0.000*** (0.000)
Constant	0.084*** (0.006)
Observations	59,009
R-squared	0.014

AppendixC.2.: OLS the effect of the program in the remaining time of unemployment, if done in each month unemployed

VARIABLES	(1) log_dur_s pell1	(2) log_dur_s pell1	(3) log_dur_s pell1	(4) log_dur_s pell1	(5) log_dur_s pell1	(6) log_dur_s pell1	(7) log_dur_s pell1
VA in month 1	0.258*** (0.080)						
VA in month 2		0.068* (0.038)					
VA in month 3			0.063*** (0.023)				
VA in month 4				0.031 (0.021)			
VA in month 5					-0.036 (0.023)		
VA in month 6						-0.036 (0.024)	
VA in month 7							-0.005 (0.030)
fem	0.039*** (0.008)	0.039*** (0.007)	0.036*** (0.007)	0.037*** (0.006)	0.037*** (0.006)	0.034*** (0.006)	0.032*** (0.006)
foreign	-0.190*** (0.010)	-0.156*** (0.009)	-0.131*** (0.008)	-0.127*** (0.008)	-0.119*** (0.008)	-0.107*** (0.007)	-0.105*** (0.007)
age_30_39	0.181*** (0.011)	0.163*** (0.010)	0.148*** (0.009)	0.143*** (0.008)	0.120*** (0.008)	0.116*** (0.007)	0.106*** (0.007)
age_40_49	0.343*** (0.012)	0.297*** (0.011)	0.265*** (0.010)	0.255*** (0.009)	0.228*** (0.009)	0.218*** (0.008)	0.211*** (0.008)
age_50_	0.557*** (0.014)	0.484*** (0.012)	0.429*** (0.011)	0.400*** (0.010)	0.360*** (0.010)	0.346*** (0.009)	0.334*** (0.009)
school	0.012*** (0.001)	0.005*** (0.001)	0.001 (0.001)	-0.002* (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)
Constant	3.445*** (0.039)	3.554*** (0.037)	3.594*** (0.035)	3.615*** (0.034)	2.454*** (0.020)	2.577*** (0.019)	3.691*** (0.032)
Previous Job Area	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	50,574	44,731	39,704	35,770	33,089	30,865	28,889
R-squared	0.389	0.391	0.381	0.369	0.364	0.361	0.358

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

AppendixC.3.: OLS the effect of the program in the remaining time of unemployment, if done in each extra month unemployed (continuation)

VARIABLES	(8) log_dur_sp ell1	(9) log_dur_sp ell1	(10) log_dur_sp ell1	(11) log_dur_sp ell1	(12) log_dur_sp ell1	(13) log_dur_sp ell1	(14) log_dur_sp ell1
VA in month 8	0.002 (0.030)						
VA in month 9		0.006 (0.036)					
VA in month 10			-0.046 (0.032)				
VA in month 11				-0.033 (0.035)			
VA in month 12					-0.020 (0.030)		
VA in month 13						-0.039 (0.033)	
VA in month 14							-0.020 (0.032)
fem	0.032*** (0.005)	0.026*** (0.005)	0.023*** (0.005)	0.018*** (0.005)	0.014*** (0.005)	0.012** (0.005)	0.011** (0.005)
foreign	-0.096*** (0.007)	-0.091*** (0.007)	-0.084*** (0.007)	-0.079*** (0.006)	-0.075*** (0.006)	-0.074*** (0.006)	-0.070*** (0.006)
age_30_39	0.110*** (0.007)	0.112*** (0.007)	0.107*** (0.007)	0.099*** (0.007)	0.093*** (0.007)	0.090*** (0.007)	0.079*** (0.007)
age_40_49	0.216*** (0.008)	0.216*** (0.008)	0.212*** (0.008)	0.207*** (0.007)	0.196*** (0.007)	0.196*** (0.007)	0.184*** (0.007)
age_50_	0.329*** (0.009)	0.326*** (0.009)	0.319*** (0.008)	0.306*** (0.008)	0.294*** (0.008)	0.288*** (0.008)	0.274*** (0.008)
school	-0.006*** (0.001)	-0.006*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)
Constant	3.701*** (0.032)	2.822*** (0.018)	2.890*** (0.017)	2.957*** (0.017)	3.745*** (0.031)	3.076*** (0.017)	3.119*** (0.017)
Previous Job Area	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,290	25,835	24,425	23,127	21,900	20,597	19,410
R-squared	0.355	0.352	0.347	0.339	0.329	0.323	0.310

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

AppendixC.4.: OLS the effect of the program in the probability of recurrence, if done in each extra month unemployed (continuation)

VARIABLES	(1) spell2	(2) spell2	(3) spell2	(4) spell2	(5) spell2	(6) spell2
VA_month1	-0.073** (0.037)					
VA_month2		0.012 (0.022)				
VA_month3			0.014 (0.017)			
VA_month4				0.042** (0.017)		
VA_month5					-0.013 (0.020)	
VA_month6						0.020 (0.023)
fem	0.025*** (0.004)	0.025*** (0.004)	0.027*** (0.005)	0.026*** (0.005)	0.025*** (0.005)	0.025*** (0.005)
foreign	0.066*** (0.005)	0.073*** (0.006)	0.082*** (0.006)	0.088*** (0.007)	0.092*** (0.007)	0.095*** (0.007)
age_30_39	-0.024*** (0.005)	-0.020*** (0.006)	-0.015** (0.006)	-0.020*** (0.007)	-0.023*** (0.007)	-0.024*** (0.007)
age_40_49	-0.045*** (0.006)	-0.044*** (0.006)	-0.041*** (0.007)	-0.047*** (0.007)	-0.049*** (0.008)	-0.050*** (0.008)
age_50_	-0.121*** (0.007)	-0.120*** (0.007)	-0.122*** (0.008)	-0.129*** (0.008)	-0.134*** (0.008)	-0.138*** (0.009)
school	-0.010*** (0.001)	-0.010*** (0.001)	-0.010*** (0.001)	-0.010*** (0.001)	-0.010*** (0.001)	-0.010*** (0.001)
Constant	0.309*** (0.014)	0.422*** (0.054)	0.417*** (0.054)	0.280*** (0.023)	0.301*** (0.027)	0.437*** (0.055)
Previous Job Area	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	54,507	47,742	41,628	37,100	34,068	31,594
R-squared	0.034	0.034	0.034	0.034	0.035	0.035

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix C.5.: OLS Main regressions without the retrospective data (only including spells started in December 2012 or after)

Robust	VARIABLES	(1) log_dur_spell 1	(2) log_dur_spell 1	(3) log_dur_spell 1	(4) spell2	(5) spell2
	VA_1	1.093*** (0.011)		1.289*** (0.039)	-0.045*** (0.007)	-0.067*** (0.024)
	VA_month1		0.282*** (0.066)			
	VA_fem			0.071*** (0.022)		-0.001 (0.013)
	VA_foreign			0.031 (0.026)		0.073*** (0.017)
	VA_30_39			0.032 (0.028)		-0.006 (0.017)
	VA_40_49			0.047 (0.030)		0.003 (0.019)
	VA_50			0.025 (0.034)		-0.036* (0.020)
	VA_school			-0.028*** (0.003)		0.002 (0.002)
	fem	0.030*** (0.010)	0.046*** (0.011)	0.020* (0.011)	0.028*** (0.005)	0.028*** (0.005)
	foreign	-0.195*** (0.011)	-0.227*** (0.012)	-0.197*** (0.013)	0.048*** (0.006)	0.039*** (0.006)
	age_30_39	0.159*** (0.012)	0.199*** (0.013)	0.158*** (0.014)	-0.016*** (0.006)	-0.015** (0.006)
	age_40_49	0.275*** (0.014)	0.347*** (0.015)	0.270*** (0.016)	-0.021*** (0.007)	-0.021*** (0.007)
	age_50_	0.500*** (0.016)	0.605*** (0.018)	0.498*** (0.019)	-0.074*** (0.008)	-0.066*** (0.008)
	school	0.016*** (0.001)	0.016*** (0.002)	0.021*** (0.002)	-0.010*** (0.001)	-0.010*** (0.001)
	Constant	1.203*** (0.026)	1.269*** (0.028)	1.168*** (0.027)	0.301*** (0.014)	0.305*** (0.015)
	Previous Job Area	Yes	Yes	Yes	Yes	Yes
	Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
	Observations	40,571	40,571	40,571	44,912	44,912
	R-squared	0.188	0.059	0.190	0.036	0.036

standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

AppendixC.5.1.: OLS Monthly regressions without the retrospective data (only including spells started in December 2012 or after)

VARIABLES	(1) log_dur_spell1	(2) log_dur_spell1	(3) log_dur_spell1	(4) log_dur_spell1	(5) log_dur_spell1	(6) log_dur_spell1
VA_month1	0.282*** (0.066)					
VA_month2		0.091*** (0.033)				
VA_month3			0.058*** (0.020)			
VA_month4				0.042** (0.019)		
VA_month5					-0.022 (0.021)	
VA_month6						-0.029 (0.022)
fem	0.046*** (0.011)	0.048*** (0.009)	0.050*** (0.009)	0.056*** (0.009)	0.052*** (0.008)	0.048*** (0.008)
foreign	-0.227*** (0.012)	-0.183*** (0.011)	-0.151*** (0.011)	-0.150*** (0.011)	-0.136*** (0.010)	-0.118*** (0.010)
age_30_39	0.199*** (0.013)	0.170*** (0.012)	0.146*** (0.011)	0.137*** (0.011)	0.112*** (0.010)	0.113*** (0.010)
age_40_49	0.347*** (0.015)	0.280*** (0.014)	0.232*** (0.013)	0.221*** (0.012)	0.191*** (0.012)	0.184*** (0.012)
age_50_	0.605*** (0.018)	0.499*** (0.016)	0.417*** (0.015)	0.376*** (0.015)	0.328*** (0.014)	0.312*** (0.014)
school	0.016*** (0.002)	0.008*** (0.001)	0.004*** (0.001)	0.001 (0.001)	-0.002 (0.001)	-0.003** (0.001)
Constant	1.269*** (0.028)	2.040*** (0.033)	2.157*** (0.032)	2.366*** (0.030)	2.571*** (0.028)	2.555*** (0.023)
Previous Job Area	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,571	33,665	27,805	23,331	20,449	18,230
R-squared	0.059	0.070	0.075	0.070	0.065	0.063

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1