

# Are there trade-offs in the short and longrun effects of active labour market policies?

## Evidence from a training programme<sup>1</sup>

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### Abstract

Most active labour market policies (ALMP) evaluations focus on short run effects. This study evaluates both the short- and long run impact of a training ALMP. We assess the effects of the ALMP both on unemployment duration and on unemployment recurrence. Our evidence is based on detailed administrative data covering a period of eight years (2012-19), from the Portuguese Public Employment Services (PES). We find that the ALMP increases initial unemployment duration but decreases the re-unemployment probability. This result indicates that ALMP may be subject to important time trade-offs and that exclusively short run analyses may significantly underestimate the effects of ALMP.

**Keywords:** ALMP, Long run Effects, Policy Evaluation; Training; Unemployment

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## 1. Introduction

Active labour market policies (ALMP) can make a significant difference to the type and quality of the work conducted by participants, typically unemployed jobseekers. In this case, ALMP can prompt major changes in individuals' employment outcomes and overall contributions to society. For instance, training interventions can promote lifelong learning and facilitate the mobility of workers to growing sectors. However, such interventions can require significant time investments from participants. Moreover, ALMP may also equally require long periods until their benefits are fully perceived and measured. In contrast, most analyses and evaluations of ALMP tend to cover short periods of time, in many cases equal or less than one year. This *status quo* can severely underestimate the private and social contributions of ALMP, at least in the case in which important dimensions of their benefits arise only in the medium and long run.

This study contributes to the ALMP literature by evaluating both the short and long run impact of ALMP. We hypothesise that there may be a trade-off between these two dimensions – the weaker the short run effects, the stronger the long run effects. This may be particularly important in the case of training ALMP. In general, jobseekers may be relatively far from the labour market for extended periods of time during ALMP participation, which may damage their short run perspectives. On the other hand, the intensity of the intervention may pay off later, in terms of longer employment spells and lower chances of re-unemployment.

Our empirical evidence is based on a training program in Portugal, called Vida Ativa (VA henceforth). VA was launched in 2012, during a major economic recession, in order to be applied to a large percentage of registered unemployed people. VA sought to increase the skills of these individuals and to improve their chances of employment, not only in the short run but also over longer periods. As the program was based on shorter training modules (comparing to earlier training programs of two years or more), lock-in effects would be minimised.

We estimate the impact of VA both on the unemployment spell length and on later employment (and unemployment), including in the re-unemployment probability. In order to examine long run effects, we draw on comprehensive and long administrative data, covering the 2012-2019 period. The data also cover all registered jobseekers in the third largest PES jobcentre in the country (or about 5% of all jobseekers in the country).

In the remaining part of this paper, we start by reviewing the international literature on ALMP, especially in training programs, and the role of socioeconomic variables, considering both the short and long run. Next, we present the ALMP context including an overview of the VA program. Our empirical methodology is described in the following section. In the main section, we present and interpret the results regarding the effects of VA and a number of robustness checks. Finally, we conclude.

## **2. Literature Review**

The implementation of public policies to tackle unemployment is often focused on economic and sociological frameworks (OECD, 2010). In fact, nowadays the implementation of ALMP can benefit greatly from being examined as an articulated approach of both economics and sociology (Granovetter, 1985; Smelser, 2013). This joint approach involves stressing the embeddedness (Granovetter, 1985) of labour market behaviour in networks of social interaction and demographic restrictions. It also involves a focus on research which discloses differences in strategies and underlying assumptions among these two areas of knowledge. In this review, we include and analysed both economics and sociology perspectives.

The long-run effects of ALMP have been studied since the late 1950s. Mincer's seminal article (1958) underlined that the period(s) spent in training courses establish a delay of earnings to later periods. Later, Schultz (1961) and Becker (1962, 1975) concluded in the same direction, by arguing that the majority of investments in human capital raise earnings, from work or employment on the long run, at older ages, because gains are added to earnings then, and reduce them at younger ages. On a different perspective, the social investment theory (Esping-Andersen, 1994; Hemerijck, 2018), while a socioeconomic framework, focuses on how people invest in their human capital (e.g., education and/or training), throughout their lifetime cycle (on the short and long run). This theory suggests that these investments can lead to greater economic growth and productivity, as well as higher levels of employment, work, or even social mobility. The theory also emphasizes the importance of labour market policies that strengthen and promote social investment, such as access to education and training programs (Hemerijck, 2018).

According to Brown et al. (2012), governments have tried to tackle unemployment through several ALMP such as subsidized employment, training programs, and general employment services (e.g., support to jobseekers in finding suitable vacancies). Furthermore, as countries' budget constraints tighten, the need to find the most cost-effective ALMP increases. Several studies have been conducted on this topic, some studying specific countries and policies (Brodkin and Larsen, 2013; Caliendo and Schmidl, 2016), others through meta-analyses (Card, Kluve and Weber, 2010; Vooren et al 2019) or over age groups (Caliendo et al, 2011; Taylor and Urwin, 2001).

As ALMP were created to tackle unemployment (OECD, 2010), their effectiveness should be related to the reduction of unemployment for the participant groups. Card et al. (2010), in a

meta-analysis study, found that on-the-job training programmes have lower effectiveness in the short run than in the medium-run, after two years. The lower short-run impacts might be explained by the lock-in effect (Wunsch, 2016). As described by Lechner et al. (2009), 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. In this same article, lock-in effects of training are found in the short run, while positive employability and earnings effects were found in the following ten-year period. Similar conclusions were stated by Vooren et al (2019) by arguing that some training schemes show negative effects in the short run, which can be related to the fact that during the training period the participants are not active on the labour market.

Crépon et al. (2007) argue that training could act as a signal (Gambetta, 2011; Spence, 1973) towards potential employers, hence decreasing the length of the unemployment spell. However, training might also increase reservation wages (Heath and Swann, 1999), resulting in longer unemployment. The results of Crépon et al. (2007) show no significant effects of training courses in reducing unemployment spells. They also found that, due to lock-in effects, long training programs (more than one year) increase unemployment spell duration when compared to shorter options. This article 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).

Betcherman et al. (2004) concluded that the design of a program is critical for ensuring positive outcomes. They found that some training programs have positive results in employment odds but offer little benefit for participants. Martin et al. (2001), concluded that training programs

should tighten the target participant groups; keep the programs small in scale; deliver qualifications or certificates recognized in the market; and have a strong on-the-job component.

The diverse effects of these policies on different demographic groups (gender, age, economic status) are important to analyse. In a study focused on women, Jenkins (2004) concluded that lifelong learning which leads to qualifications is strongly associated with a higher probability of unemployed women returning to work. Other studies found that women benefit more from training programmes or bring more consistent results than men (Betcherman et al., 2004, Card et al., 2015, Martin et al., 2001). Arellano (2010) observed 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. Other articles found no significant gender differences in the effect of training, as Card et al. (2010) meta-analyses, and Crépon et al. (2007).

Across age groups, lower effects for training to the youth were found by Card et al. (2010) compared to untargeted programmes. Similar results were stated by Kluve (2010), Card et al. (2015) and Betcherman et al. (2004), which finds that youth problems are addressed more efficiently through education interventions. Mixed results were found by Caliendo and Schmidl (2016): for less than half of the programmes/sub-groups, positive effects were found; and for the majority, insignificant or even negative effects of ALMP, particularly in training programmes. Card et al. (2015) identified three studies that suggest that ALMP are more effective in periods of high unemployment. Lechner et al. (2006) explain that, when unemployment is high, the lock-in effect of training has a lower opportunity cost.

There might also exist positive outcomes for the most disadvantaged workers, breaking down the negative consequences of the “outsider” phenomena (McTier and McGregor, 2018).

### **3. Background**

The 2008 financial crisis had a large negative effect across the OECD, including in Portugal (OECD, 2010). According to OECD (2017), total employment fell by 15% between the middle of 2008 and early 2013 in the country. While the EU average unemployment rate rose to around 10% during this period, unemployment in Portugal surpassed 15%, reaching 16.8% in 2013. After the recession years, fell to 6.9% in 2017 (OECD (2022a)).

In this crisis period, the labour market was characterized by high segmentation: a large share of temporary workers (Pedroso, 2014) and low skilled labour supply (ILO, 2018). In this context, the governments over the period adopted several reforms, including new ALMP. Employment protection, collective bargaining, and unemployment benefits converged to OECD practices (OECD, 2017, 2018). ALMP were introduced to activate jobseekers collecting unemployment benefits more effectively and in a more differentiated way (ILO, 2018).

In 2012 “Formação Transversal” and VA shortterm training programmes 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 programmes, in the subsequent years after implementation.

From this stage on, the study will be focused on VA programme, one of the programmes with higher enrolments.

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With the goal of increasing qualification and promoting employability of active population, the shortterm training programme, VA was implemented by the Portuguese Government in 2012. It aims to reinforce the matching of vocational education with the labour market and jobseekers' needs, through the increase of their professional, social, and entrepreneurial skills combined with official validation of prior skills (Meghnagi and Tuccio, 2022) and qualifications (Decreto-Lei nr. 203/2013, 2013). In the framework of the programme to relaunch the PES (Decreto-Lei nr. 20/2012, 2012), including more closely support to the unemployed, the Employment Plan has been adjusted to the jobseekers' needs and potential, with special attention to the long-run unemployed people. VA also pursued to act on the findings of the IEFPP report (2011), that indicated that there were many training courses of a very longterm duration, with few participants at their end (because of drop-outs, retirements, and exits to employment), leading to high costs per participant.

VA programme implementation strategy includes three different actions:

- a) Shortterm modular training courses
- b) On-the-job training, to complement the modular training or skills previously achieved
- c) Official validation and certification of skills acquired in previous formal or informal experiences

Exclusively available for registered users at the IEFPP's centres, the initiative prioritizes jobseekers who are jobless for more than six months; without the lower secondary level (or with clearly skills mismatch for the labour market), as well for single parents or families where one of the parents is unemployed. In December 2013 a specification of the programme, named "VA Jovem" (VA Youth), was introduced, focused on entrepreneurship and digital skills 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 programme "VA QUALIFICA +".



This new strategy created specific paths for this category of population, focusing on basic skills and digital training, integrating personal, social, and professional dimensions. (IEFP 2018).

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 programmes are part of this plan; hence, VA is one of the possible paths to follow. By own initiative or suggested by an employment counsellor, the candidate should pre-enrol in a course, mentioning their interests and aspirations. After the application period, the training provider (private or public body legally certified), considering the interests, the prior skills, and profiles of the applicants, creates the training groups (classes of 20 up to 30 people) with a specific subject, that meets the job market needs. (IEFP, 2013).

The different courses available encompasses distinct qualifications levels, hence the training sessions are designed by matching the previous skills and qualifications. The available programmes are: Specific Technological Training (skills for a particular job); Basic or Sociocultural Training (equivalent to lower or upper secondary level); Behavioural Training (quality, safety, hygiene, and citizenship); Entrepreneurship Skills Training (foster independence on (re)integration into the job market); Basic Skills Training (training for inclusion of the lower qualified).

The courses last from 25 to 300 hours, adding an extra component of “on-the-job training” for some those courses longer than 100 hours, especially for the lower qualified people. The programme is taught in worktime regime, which might be implemented in part-time or full-time (up to two to four days per week). During the teaching period, participants must keep

searching for a job. (IEFP, 2018) This requirement may be important to minimise the lock-in effects (Wunsch, 2016) typically present in training ALMP.

According the regulation (IEFP, 2013), the IEFP should supervise and evaluate the programme regarding the integration process; target population; skills increase; reinforcement of the active job search, aiming to improve the strategy and increasing effectiveness of the programme. However, until today no IEFP report was publicly presented for that purpose. Only OECD, in 2017, published a preliminary assessment of the Portuguese ALMP (OECD, 2017), including an evaluation of this programme. To contribute to this evaluation gap, the present study, also will analyse the VA programme 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 AEC, 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 AEC in each month
- (2) Registration of placements in jobs offered through IEFP (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 VA programme (course participants, start/end dates, area, and reason for leaving the course)

Like the one used by Costa Dias et al. (2012), the IEFP database contains, all the historical information of each unemployed during the available time range. It includes individual and socio demographic variables, based on information of the unemployed, such as birth date, gender, nationality, education as well previous job and intend job area (the database does not have information on marital or parental status, nor on household members employment situation, neither on economic status).

Initially, the database had a large data set per person (identified through a unique id value), one observation for each month, covered in the data, that they were registered by the employment service, plus the job placement or annulation of unemployment spell and the VA programmes data. Hence, for simplification, data was transformed to one observation per person. For each individual, socio-demographic characteristics were collected from the first record that appear in the database (first registration in IEFP from December 2012), and more socioeconomic variables were created to summarize their historical information of unemployment (unemployment spells start and ending dates, participation or not in VA training programme and its features). The raw database (before it was simplified) had 1,153,883 lines, representing 88,726 people. To calculate the impact of VA programme on the outcomes of interest, the data had to be cleaned further.<sup>1</sup>

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. People 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 programme 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 (due to 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 VA programme in the first spell (13.17%) and those who did not (86.83%), plus an additional column representing the entire sample. In the full sample, there are almost as many men as women unemployed registered in AEC (49.1% and 50.9% respectively). This proportion is slightly higher among programme participants (52.7%), which suggests that women are slightly more prone to participate, than men. Programme

“TABLE 1 here”

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 programme 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 programme participants is slightly lower than in the full sample (17.5%), a possible explanation for the difference could be language barriers, which, in truth, might also justify the small magnitude of the difference, as most of the foreigners are from Portuguese-speaking countries.

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

During the available timeframe, each individual has on average 1.63 unemployment spells, this average is similar but 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 programme 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 programmes, 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 programme participants is a pre-condition to programme participation or a consequence.

After 12 months of the end of the programme the participants employability rate was 81.22%, meaning that after finishing the programme, 81.22% of participants have left unemployment (Appendix B. 4.)

## 5. Method

To assess the effects of participation in VA programme in two different labour outcomes, the analysis was based on an OLS 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 VA Programme in first spell), and 0 if non-treated (non-participant in VA courses but might be participant in other programmes offered by IEFEP). The coefficient  $\alpha$  is the parameter of interest, representing 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 through the PPE, to participate in the programme, or, at the same time, more proactive individuals might be more prone to voluntarily apply to the courses. These characteristics will likely be related to the easiness to find a job, which induces variations in the outcome variable. Therefore, the accuracy of this coefficient relies on the importance of participant's selection.

$X_i$  represents a vector of observable covariates (exogenous demographic information) that will be controlled for, and  $\beta$  a vector of their respective impact on  $Y_i$ . Finally,  $\varepsilon_i$  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 programme. The short-run will be evaluated through the impact of the programme in the duration of the first unemployment spell<sup>2</sup> (in which individuals participate or not in the programme), and the long-run outcome will be measured by the probability of recurrence of unemployment, after finishing the first spell<sup>3</sup>.

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 programme 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 ( $VA\_I$ ) with the controls will be added to evaluate the heterogeneity of the effects across the different groups (after named vector  $I_{ji}$ ).

$$Y_i = c + \alpha_1 VA\_1_i + \beta X_i + \delta_1 VA\_fem_i + \delta_2 VA\_foreign_i + \delta_3 VA\_30\_39_i + \delta_4 VA\_40\_49_i + \delta_5 VA\_50_i + \delta_6 VA\_school_i + \varepsilon_i \quad (4)$$

### 5.1. Spell Duration (short run) analysis

In the short run analysis we want to evaluate how the programme will influence the time until finding a job. Hence, only the number of months after taking the VA 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 programme 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 that treated individuals starts the programme. 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:

$$\log\_dur\_spell1_i = c + \alpha VA\_month\_i + \delta_{ji} I_{ji} + \beta X_i + \varepsilon_i \quad (5)^4$$

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 programme, end the first spell, and experience VA 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 interest ( $\alpha$ ) will, in this case, represent how the programme 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 are explored in the following sections.

## 6. Results

In this section, findings from previous models will be presented and interpreted, driving conclusions about the VA programme 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.

**Erro! A origem da referência não foi encontrada.** presents the estimates from the different models described in the previous section. The first three columns present three regressions of the short run 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 is associated with a longer unemployment spell, by around 2.8% on average, and an increase in the probability of recurrence by 2.6%. Non-Portuguese individuals are associated with shorter spells (around 16.6% lower). This effect might be explained by their lower reservation wage, they are probably more willing to accept jobs that the Portuguese are not open to, allowing them to find a job faster. Another possible explanation for the shorter spells is that foreigners might have worked for shorter periods or didn't have a declared job before (in Portugal or in a country with Social Security agreement with Portugal (Segurança Social, 2021) ), hence receiving unemployment benefit for shorter time (which decreases their reservation wage). Their probability of unemployment recurrence is higher than for the Portuguese, suggesting fewer stable jobs for foreigners.

“TABLE 2 here”

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 VA courses in duration of first unemployment spell, the results reveal that the programme is associated with longer spells, after controlling for demographic information. According to results, participating in this shortterm training courses increases length of unemployment spells by 154%, on average, *ceteris paribus*, comparing to non-participants ( $\exp(0.934) - 1 \times 100 = 154\%$ )<sup>5</sup>. Increase in spell length, associated with training programmes, could represent lock-in effects, however, in this case the increase associated goes largely beyond the duration of the programme<sup>6</sup>. This suggests that the treatment variable is capturing other characteristics associated with programme participation that have large effects on unemployment duration, revealing the existence of omitted variable bias. Although when implemented by the Portuguese Government these shortterm training programme had the goal of decrease the lock-in effects faced in long curriculums, this analysis is not allowing to identify their existence or not. programme

To get a more robust specification, the moment of participation needs to be controlled for. People who have done the programme later, should not be compared to people who were not unemployed for at least the same number of months as the time until the programme. The second column of **Erro! A origem da referência não foi encontrada.** includes the dummy variable representing participation in the VA programme in the first month of the unemployment spell, or not. The model reveals that frequent the courses in the first month unemployed is associated with a significantly longer unemployment spell. However, the difference of participants and non-participants is lower than in the previous, general

participation analysis ( $\exp(25.8)-1 \times 100 = 29.4\%$ , compared to previous 124%), 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 programme participation. This will allow to evaluate the impact that participating in programme, in each month of unemployment, has in the post-programme duration of unemployment. Results show that participating in the programme until the third month is associated with a significant, but smaller than in first month, increase in post-programme 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.<sup>7</sup>

Furthermore, interactions of treatment dummy with demographic variables are added in the third column of **Erro! A origem da referência não foi encontrada..** The results reveal that being non-Portuguese and the first age cohort create no significant difference in the effects of the programme. Belonging to the last two cohorts, 40-49 and 50 or more years old, individuals participating in the programme, 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 programme. Interestingly, lower schooling levels are not associated with larger reward from the programme. Moreover, being a woman will worsen the effects of the programme. Arellano

(2010) shows that in Spain, gender asymmetries in unemployment were not surpassed by a training programme, in this case, in the short run, they are worsening by the VA programme, as women participant experience longer unemployment than men participant.

For the recurrence analysis, the effect of the programme shows to be positive, as the coefficient of participating in the programme is negative and significant. Hence, programme participation is associated with lower 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 programme. The results could be underestimated, if people participating in the programme show to be less proactive and resilient, hence, more prone to unemployment, or overestimated, if treated individuals are tendentially more proactive, willingly applying for the programme, and with higher probability of finding a more stable job.<sup>8</sup>

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 programme effects. As well as no significant difference in the effects according to age, or education level. Only being a non-Portuguese participating in VA courses will annulate the effect of the programme on decreasing recurrence ( $(-0.043 + 0.036) \times 100 = +0.6pp$ ), meaning that being a foreign participant won't decrease probability of re-unemployment through the programme.<sup>9</sup>

## **6.1. Limitations**

The credibility of previous models relies on the exogeneity assumption of the variable of interest. As Arellano (2010: 63) says, "*The conclusions are conditional on the potential existence of endogeneity and unobserved heterogeneity*". It was referred before that

individuals participating in VA programmes might be lower skilled or non-proactive and indicated to take the courses by the employment counsellor; or, at the same time, they might be from the same low education levels, but proactive persons, deciding to take the programme by their 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 VA participants are associated with longer unemployment spells, probably as a pre-condition to the programme, hiding the programme effects on unemployment spell duration, and increasing uncertainty about the reliability of the results on the probability of recurrence models.

Trying to surpass the endogeneity limitation, several studies in this area used 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 as the ones being controlled for in the used models. Other research uses 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. This model differs from the one used in the sample building, and also in the analysis.

This study evaluates the impact of participating in VA in the first unemployment spell registered. As stated before, it was made for simplicity, and to have more months after programme participation, to evaluate its consequences. However, it could be expanded to evaluate the impact of more participations across the years (not only in first spell). Along with assessment of more than one programme participation.

Unemployed individuals registered in IEFPP may participate in several other categories of programmes, including other training programmes. However, the used database has no information on other programme participations, limiting this research to the comparison of the

programme with “no programme or other programmes”. Information of other programmes participation would allow to calculate the impact of VA in relation to non-programme and compare with other ALMP namely with long training courses, evaluating differences in lock-in and long-run effects. Furthermore, there might exist correlation of VA or non-VA with other programmes participation, that might be biasing the analysed results. Hence, other policies’ database would allow for a more accurate evaluation of the programme.

In this research, the impact of the programme is being assessed generally, focusing on its broad impact on unemployment duration and recurrence. 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 programme 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)<sup>10</sup>. Furthermore, as seen in the literature review, the opportunity cost of the lock-in effects of training programmes is smaller in recessions, therefore, it would be interesting to differentiate the socioeconomic effects of the programme during economic recessions and recovery or expansions.

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

## **7. Conclusion**

Across the OECD countries, significant resources have been invested in ALMP - around 2% of GDP per year in the last decade (OECD, 2022b). About half of this amount was invested in

training programmes. Given this context, this study assessed the impact of the VA training programme for unemployed people, in their unemployment spell length and in the likelihood of recurrence to unemployment.

Through OLS estimations, assuming exogeneity of the treatment, the results evidenced that participation in the VA programme is associated with an increase in the unemployment spell length, in which the course is taken. Moreover, the estimations reveal that the programme is also associated with lower likelihood of recurrence, meaning that even having a longer unemployment spell, people who complete the programme are observed to be less prone to return to an unemployment status, after finishing the current spell.

In the first (short run) analysis, an exploratory approach was taken, to assess if participating in the programme 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 programme is not effective in reducing that time if participated before the fourth month of unemployment. This conclusion is in line with the human capital theory (Becker, 1962, 1965; Mincer, 1958; Schultz, 1961), regarding the long run effects. Furthermore, following this approach, no lock-in effects were found if participation in VA takes place after the third month of unemployment. From the sociological point of view, our research underlines that short run training programmes, contributes, on the long run, for an increment on the individual socioeconomic framework, as well to influence the labour market structure. This conclusion is in line with the work of Esping-Andersen (1994) and Hemerijck (2018). On the other hand, it follows closely the idea of embeddedness of the labour markets (Granovetter, 1985; Smelser, 2013).



Our contributions rely on the originality of the research, focusing on variables that have not been explored. It has limitations, on the interpretation of the results because of endogeneity issues, but it works as a base for further research on this area, and as an example of what socioeconomic variables and heterogeneous effects of programmes might be assessed.

Finally, further research would be important. 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. The long database allows one to explore the programme effects regarding other socioeconomic variables and outcomes, as the employment period after the programme, the percentage of time in unemployment, or the distinct reasons and effects of taking the programme more than once.

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## Tables/Figures

	Participated in VA Programme in first spell		
	No	Yes	Total
Total	51239.00	7770.00	59009.00
	86.83	13.17	100.00
<b>Gender</b>			
Male	25273	3672	28945
	49.3%	47.3%	49.1%
Female	25966	4098	30064
	50.7%	52.7%	50.9%
<b>Age Group</b>			
< 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%
<b>Nationality</b>			
Portuguese	39118	6409	45527
	76.3%	82.5%	77.2%
Foreign	12121	1361	13482
	23.7%	17.5%	22.8%
<b>Age</b>	35.06	38.99	35.57
<b>School</b>	9.52	9.43	9.51
<b>Number of Spells</b>	1.65	1.52	1.63
<b>Length of 1st spell</b> (months)	11.46	21.25	12.75

*Table 1: Descriptive Statistics*

**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

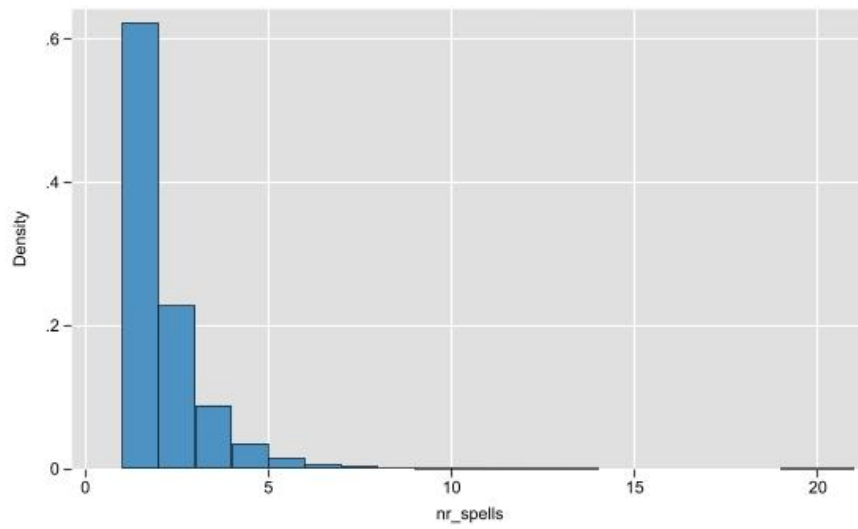
**Notes:** Robust standard errors are in parentheses and stars represent significance of the coefficient (\*\*\* p<0.01, \*\* p<0.05, \* p<0.1).

“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 1<sup>st</sup> to 3<sup>rd</sup> regression represent people who have started first registered unemployment spell until December 2016; for 4<sup>th</sup> and 5<sup>th</sup> regressions, observations are restricted for people who ended unemployment spell before January 2019.

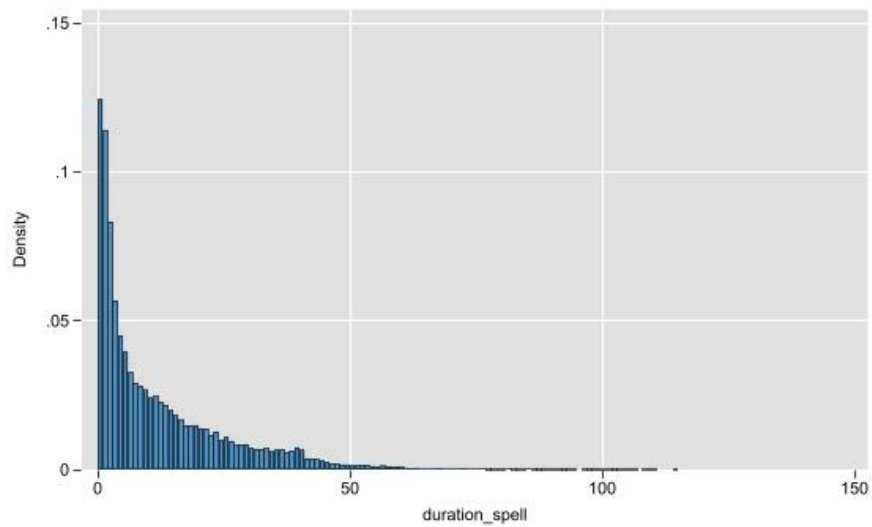
**Table 2: OLS Estimations**

## **Appendix A – Sample construction**

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



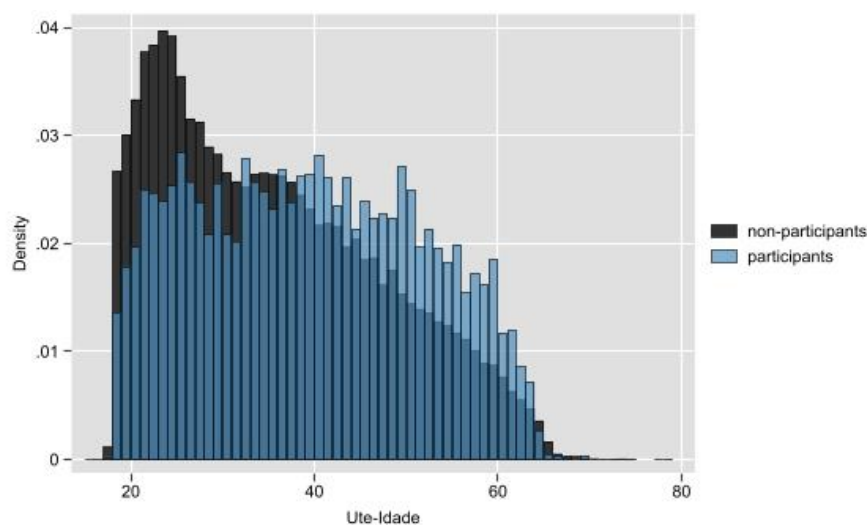
**Appendix A.2.:** Histogram of first spell length





## **Appendix B – Descriptive Statistics**

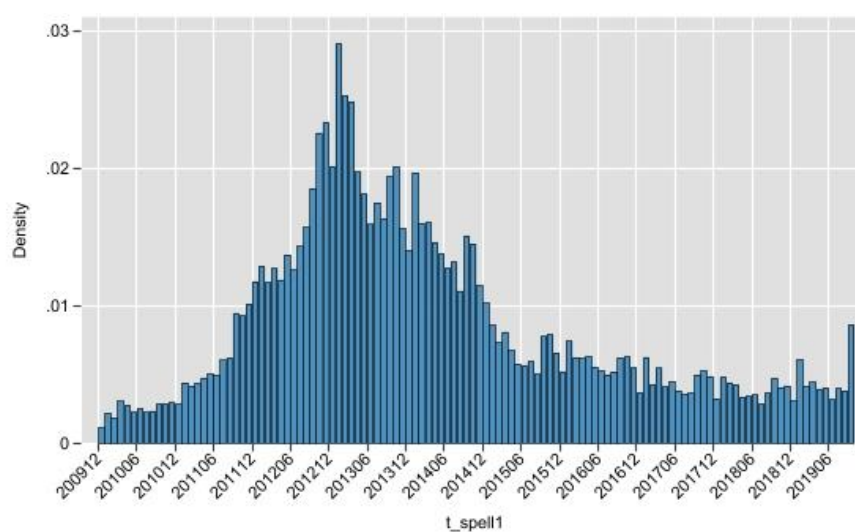
**Appendix B.1.:** Histogram of Age (VA participants vs non-participants)



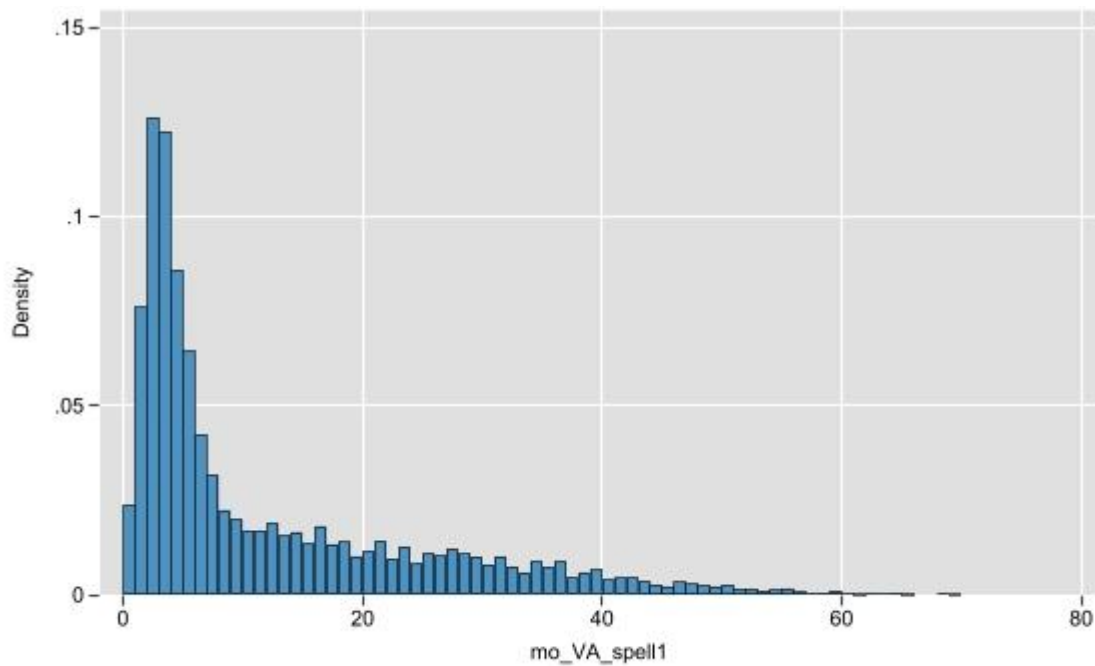
**Appendix B.2.:** Participants in VA Programme

Participated in VA Programme 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 programme participation (in months)



**Appendix B.4.:** Employability of programme 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**

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

<b>VARIABLES</b>	<b>VA_1</b>
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

**Appendix C.2.: OLS the effect of the programme 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

**Appendix C.3.: OLS the effect of the programme 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

**Appendix C.4.: OLS the effect of the programme 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)**

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

Robust 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



## **Appendix D – Institutional aspects**

In the period after the 2008 financial crisis, the unemployment rate in Portugal was high, and above the EU average. In the framework of the Portuguese Public Employment Services (PES) the Instituto do Emprego e Formação Profissional (IEFP) is responsible to implement the Active Labour Market Policies (ALMP). In the last decade, Portugal invested between 1.25% of GDP in 2019 and 2.33% in 2013 (OECD, 2022b) in executing these policies. The average annual expenditure in ALMP was €651 million between 2011 and 2015, a period in which PES's users increased by 45% (IEFP, 2015). Training programmes represent an important share of ALMP investment. According IEFP (2019), more than 50% of PES spending in labour market programme was for professional training. Furthermore, training programmes have high dropout rates (15.2% in our dataset), which increase the training cost per capita.

Despite the financially significant spending, ALMP in Portugal are only object of evaluation in few studies. The main available studies were published by Costa Dias et al. (2012), and another one by OECD (2017). Hence, this research about the short run VA programme is new and important to the literature, as it contributes to a limited evidence base, regarding labour market policies impact on the long run.

This article draws on IEFP data from Amadora Employment Centre (AEC), one of the IEFP's employment centre national network, and one of the biggest. In December 2019 it was the third leading centre in professional training provision, following Porto and Lisbon centres, covering 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 registered users at this centre. This sort of dataset, in Portugal, has been barely analysed. The main two studies found using similar data, were the 2012 evaluation, by Costa Dias et al. (2012), already referred, and Martins et al. (2014).

## Notes

<sup>1</sup> Although 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.

<sup>2</sup> 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 exponential of the coefficients will represent percentage change in spell length motivated by unit changes in the regressors.

<sup>3</sup> The outcome variable will be a dummy variable representing if the individual had second spell of unemployment or not ( $spell2$ ).

<sup>4</sup> The \* in the dummy variable represents each month analysed

<sup>5</sup> Average duration of first spell for non-program participants is 11.46 months, hence the VA would increase its length to around 22 months.

<sup>6</sup> average VA length is 1.51 months

<sup>7</sup> This inference considers no endogeneity. Analysis of later months should represent more similar individuals, as the sample is restricted to longer spells.

<sup>8</sup> 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.

<sup>9</sup> 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.

<sup>10</sup> 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.