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The evaluation of the Youth Employment Initiative in Portugal using Counterfactual Impact Evaluation methods

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Abstract

The Youth Employment Initiative (YEI) in Portugal is the framework for a set of specific actions to take place in regions experiencing youth unemployment rates above 25%, and which aim to help young individuals who are not in education, employment, or training.

This report evaluates the YEI implementation in Portugal, using counterfactual impact evaluation (CIE) methods to estimate its causal impact on young individuals' labour market outcomes. The analysis was carried out using Portuguese administrative data from the Public Employment Service, and Social Security registers.

Findings showed that when young individuals participated in internships or hiring support schemes funded by the European Social Fund (ESF), there was a positive and long-lasting effect on the individuals' labour market outcomes. This effect varied in magnitude according to the type of intervention, and across specific population groups.

1 Introduction

The European Social Fund (ESF) has been a strong advocate for policies aimed at promoting the qualification, employability, and integration of young people in the labour market. The 2008 economic crisis triggered a striking increase in youth unemployment, with consequent negative effects on the economic situation, and an increased risk of social exclusion in the millions of young individuals who were left jobless.

In this context, the European Commission adopted the Youth Employment Package in December 2012, which included the proposal for a Council Recommendation on establishing a Youth Guarantee (COM (2012) 729 final), launching the second phase of consultations with social partners on a quality framework for internships (COM (2012) 728 final), announcing the European Alliance for Learning, and methods of reducing obstacles to youth mobility (COM (2012) 727 final).

The YEI was launched as an instrument to allocate funds for strengthening and accelerating the implementation of the Youth Employment Package measures. YEI is one of the main financial resources available to the European Union to implement the Youth Guarantee. It is targeted at young people not in employment, education, or training (NEETs), including the long-term unemployed, and those who are not registered as job seekers. The initiative is most specifically aimed at supporting young NEETs in Member States' (MS) regions which registered a youth unemployment rate of over 25% in 2012, through a set of specific actions targeted exclusively at this group of individuals. Within this framework, the YEI emerged as a response to the constraints on youth employability, and to the Recommendation for a Youth Guarantee. Each MS committed to The Youth Guarantee to ensure that all its young people "receive a good quality offer of employment, continued education, an apprenticeship or a traineeship within four months of leaving school or becoming unemployed".

This report evaluates the YEI implementation in Portugal by estimating its causal impact on young individuals' labour market outcomes. The analysis was carried out using Portuguese administrative data from the Public Employment Service, and Social Security registers, made available by the IEFP (Instituto de Emprego e Formação Profissional). The causal impact between young individuals' participation in the YEI, and their labour market status, and wages up to 36 months after the start of the programme is estimated using counterfactual impact evaluation (CIE) methods, more specifically, exact matching and an optimal matching algorithm (OMA) on the sequence of individuals' labour market status prior to their participation in YEI programmes. Overall, the results showed a positive and long-lasting effect of young individuals' participation in internships or hiring support schemes funded by the ESF. The magnitude of these effects varied across both types of intervention, and specific population groups.

The remainder of the report is organised as follows: Section 2 presents the specificities of the YEI implementation in Portugal; Section 3 describes the data, and the final sample used in the analysis; Section 4 discusses the methodology; and Sections 5 and 6 present and discuss respectively the main results from the whole sample, and the results from specific groups of individuals, as defined by demographic characteristics. Section 7 summarises and concludes the study.

2 Institutional background: the YEI in Portugal

The YEI is complementary to actions undertaken at national level, namely those that receive support from the ESF, which aim to implement Youth Guarantee schemes. In order to effectively complement other schemes and initiatives, the implementation of the YEI is incorporated in the ESF programming, within the framework of investment priorities aiming to support the sustainable integration of young NEETs (aged 15-29) into the labour market. In Portugal, this is Priority Axis 2 from the Social Inclusion and Employment Operational Programme (PO ISE).

Since its initial implementation, the YEI in Portugal has been covering all Portuguese regions, as, at the point of programming, all regions had a youth unemployment rate equal to or higher than 25%. These regions are as follows: lesser developed regions (Norte, Centro, Alentejo, and the Autonomous Region of Azores); the Algarve as a transition region; and the most developed regions, namely Lisboa, and the Autonomous Region of Madeira. After the reprogramming of the YEI in 2017, the funding allocation was increased for regions which had youth unemployment rates above 25% in the previous year (2016). As a result, only the Algarve region has not seen its allocation increased.

The main objective of the YEI is to increase the qualifications, and sustained integration into the labour market, of young NEETs, particularly through promoting developing skills for the labour market. In Portugal, the YEI supports a set of specific actions aimed at young NEETs, which include:

1. Qualifications/Education aimed at increasing the employability of young NEETs, through investing in their acquisition of skills adjusted to the needs of the labour market, and which can contribute to

the completion of a cycle of studies. In this context, promoting the qualification of young NEETs is done at two levels:

- (i) Strengthening the skills of NEETs through access to a modular training path, complemented by practical training in the workplace, vocational strand, or double certification. It is also planned to finance entrepreneurship training actions, or to acquire additional skills in areas with greater employability;
 - (ii) Investing in higher qualifications for young NEETs, with the goal of increasing levels of youth participation in higher education, and the number of graduates entering the labour market through the recovery of young individuals who dropped out from higher education.
2. Internships and hiring support schemes, aiming to create suitable conditions for promoting the employability of young people who are looking for their first job or a new job, by supporting the transition from education into the labour market, through practical work experience in both a national and international context.

3 Data

3.1 Data description

The sources of information used for the YEI evaluation included the administrative data obtained from the Portuguese public employment service (IEFP), as well as the Social Security (SS) register with payments of the Portuguese social contribution tax (TSU ¹). The data sources contain three different and complementary types of information, namely job search, interventions, and income.

As far as job searches are concerned, the information provided covers all the job applications registered by the IEFP in the Job Centres, and all individuals considered here as candidates for a job market placement. Job applications include individuals classified as: (i) unemployed, i.e. an applicant registered in an Employment Centre who is not employed and is looking for a job, is immediately available and has the ability to work; (ii) employed, i.e. an individual, whether or not registered in an Employment Centre, who has a full or part-time job, or who submits a monthly income statement; (iii) occupied, i.e. an individual, whether or not registered in an Employment Centre, who is attending vocational training, taking part in active employment measures (IEFP interventions) or involved in socially necessary work; and (iv) unavailable, i.e. an applicant registered in an Employment Centre who does not meet immediate conditions for work. When individuals register at a Job centre, a “Personal Employment Plan” is made by the public employment service: given the individual characteristics, a set of interventions is (or is not) proposed to promote the integration of the individual into the labour market. For all registered individuals, the IEFP records individual characteristics such as gender, exact birth date, residence, nationality, highest level of education attained, and the dates regarding any event relevant for the IEFP database.

The information on interventions includes data on all the activities carried out by the IEFP in the context of public employment policy, in terms of employment activities (including internships, hiring support schemes and others), training and vocational rehabilitation measures, as well as interventions with external entities and vocational guidance interventions (professional orientation/career guidance). These activities do not apply exclusively to registered job seekers and may have other users external to the IEFP activities (for example, people who are not registered as looking for a job at IEFP but who want to attend a training course developed by IEFP). For all individuals, the data contains information on any intervention they participated in within the IEFP activities. It is thus possible to identify individuals who participated in the YEI interventions, namely internships and hiring support schemes (treated units), and those who did not, i.e. those who participated in non-YEI interventions or no intervention at all (control units). As for the treated individuals, information regarding the YEI interventions includes the start and end dates of the activity, the type of intervention, and whether the individual participated in another programme after completing the YEI intervention.

Finally, as regards income, the information comes from the registration of income in Social Security registries for the individuals identified by the IEFP. It should be noted that these registries exclude self-employed workers or employees during sick leave periods, which are both exempted from the payment of the social contribution tax (TSU). The data provides information on the overall value of the monthly remuneration declared to Social Security and the main type of qualification of the worker (employee, employer, independent worker, domestic service or other)².

¹We would like to thank the Department of Planning, Management, and Control of IEFP, and Cristina Faro, for granting access to and collecting the data from the IEFP and the SS.

²Please note that each user may have more than one declared value per month. In this sense, in order to have a single monthly registration, the conversion mechanism used was the sum of the values available in each month, when applicable.

These three data sources are put together and form the basis for the YEI evaluation exercise presented in this report. The final dataset contains information on all individuals who registered at the IEFPP for employment or intervention services from 01/01/2009 to 31/12/2018 and with date of birth > 01/09/1983 (as of 01/09/2013 they were not yet 30 years old, meeting YEI eligibility issues), regardless of their employment status at the time of entry³. Data from the IEFPP is merged with data from the SS to obtain monthly information on labour market status and participation in IEFPP interventions both in the pre-intervention and post-intervention period, for all individuals in the sample (the treated group and the control group).

3.2 Final sample and summary statistics

The starting population of all individuals who registered for employment or intervention from 01/01/2009 to 31/12/2018, and who were below 30 years old as of September 1st 2013 consists of 1,131,804 individuals. The analysis focuses on the causal impact of participation in YEI internships and hiring support. Individuals who undertook such YEI interventions from September 2013 are considered as “treated”⁴. The initial population includes individuals who have participated in any comparable activity financed by national funds; these individuals are excluded from the analysis. YEI internships and hiring support programs of different lengths are distinguished in the analysis, so that overall seven different treatments are considered: internships 1 to 6 months in duration, 7 to 12 months in duration, and 13 to 18 months in duration respectively; hiring support 1 to 6 months in duration, 7 to 12 months in duration, and 13 to 18 months in duration respectively; and internship plus hiring support of 7 to 12 months each⁵. Finally, the analysis is restricted to individuals that we were able to observe for at least 36 months after the start of any YEI activity.

The final sample consists of 968,910 individuals, of which approximately 9% are in the treated group. Table 1 shows the number of individuals by treatment status (panel A) and the distribution of treated individuals across the seven different treatments distinguished in the analysis (Panel B).

Table 1: Final Sample

Panel A - Treated & controls		
N. individuals		968,910
N. treated		82,615
N. controls		886,295
Panel B - Treated		
Treatments	Col %	No.
Internship 1-6 months	6.7	5,576
Internship 7-12 months	44.1	36,468
Internship 13-18 months	2.8	2,315
Hiring support 1-6 months	8.5	7,003
Hiring support 7-12 months	13.7	11,277
Hiring support 13-18 months	4.4	3,651
Internship + Hiring Support	19.8	16,325
Total	100.0	82,615

The most popular YEI intervention is the internship program of between 7 and 12 months’ duration, which was undertaken by slightly less than half of the treated individuals. This is followed by the treatment entailing both an internship and hiring support scheme (undertaken by approximately 20% of the treated group) and the hiring support scheme intervention of 7 to 12 months in length (13.7% of treated individuals undertook it).

Since each user may have more than one declared value per month, the qualification type refers to the main declared source of income.

³In total, 1,143,656 users were identified, of which 1,077,097 have a valid social security registration number. With the need to transform the original data into unique monthly records per individual, this number has undergone a slight change to a total of 1,131,804 records (this difference is due to the fact that only the cases valid at the end of the month were included in the monthly records, excluding cases with partial records during the month and that did not have additional information in the remaining databases)

⁴Individuals who participated in activities classified as YEI before September 2013, i.e. the start of the YEI implementation, are considered as misclassified and excluded from the final sample.

⁵When individuals both undertake an internship and benefit from hiring support, in approximately 80% of cases the duration is 7 to 12 months for each of the interventions. Thus, only these individuals are kept for the analysis.

Table 2 reports the average values of some individuals' demographic characteristics for the final sample of treated individuals, separately for each of the seven treatments identified.

Demographic variables were measured at the start of the YEI intervention. It can be observed that the sample of treated individuals is fairly homogeneous in terms of gender and age across the different possible treatments. On the other hand, educational attainment shows substantial variability across different treatment groups: individuals participating in an internship program (columns 1 to 3), regardless of length, and even when it is paired with a hiring support scheme (column 7), appear to be more educated than the ones taking part in hiring support initiatives. Among the first group, 40 to 54% of the individuals have higher qualifications; among the second group of individuals the situation is reversed, with 40 to 46% of them having less than secondary qualifications.

Table 2: Descriptives for the treated sample

Variables:	Treatments						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Sample mean						
Female	0.56	0.57	0.62	0.53	0.53	0.53	0.57
Age	24.06	24.08	24.41	24.36	24.12	24.47	23.94
Highest educational attainment:							
Less than secondary	0.26	0.13	0.14	0.46	0.40	0.45	0.14
Secondary & post-secondary	0.34	0.32	0.31	0.41	0.44	0.41	0.37
Higher education	0.40	0.55	0.54	0.13	0.17	0.14	0.49

Notes: Columns (1) to (7) refer to each of the seven treatments, respectively: Internship 1-6 months, Internship 7-12 months, Internship 13-18 months, Hiring support 1-6 months, Hiring support 7-12 months, Hiring support 13-18 months, Internship + Hiring Support

4 Empirical Strategy

4.1 The evaluation problem

The objective of this evaluation is to investigate whether individuals' participation in any YEI activity improved their labour market outcomes. Identifying the causal relationship between the intervention and individual outcomes crucially depends on solving the endogeneity bias issue stemming from selection in the treatment.

In the potential outcomes framework based on work by Rubin (1973a,b, 1974, 1977), the effect we are interested in is defined as follows:

$$\begin{aligned}
 ATT_{t+h} &= E[Y_i^{t+h}(1) - Y_i^{t+h}(0)|W_i = 1] \\
 &= E[Y_i^{t+h}(1)|W_i = 1] - E[Y_i^{t+h}(0)|W_i = 1]
 \end{aligned}
 \tag{1}$$

The Average Treatment Effect on the Treated (ATT) measures the average effect of the programme on those who participate. In the above equation, $Y_i^{t+h}(1)$ is the generic potential outcome Y for individual i measured h months after the beginning of YEI in the actual scenario where the programme is in place. $Y_i^{t+h}(0)$ is its counterpart in the counterfactual scenario where the programme is not in place. $W_i = 1$ simply indicates that individual i participated in the programme. Conditioning on $W_i = 1$ means that the effect is estimated on the subgroup of treated individuals.

The fundamental problem of policy evaluation is that only one of these two scenarios is observable in reality, i.e. the one in which the programme is in place. As a consequence, the quantity $E[Y_i^{t+h}(0)|W_i = 1]$, i.e. the average counterfactual outcome of participants in the absence of the programme, is not observable. If participation in the programme were randomly assigned, one could solve this "missing information" problem in estimating the average outcome of participants by simply observing the average outcome of non-participants.⁶

In the context of YEI, assignment to the programme is far from random. For this reason, we rely on matching approaches. These deliver estimates of the ATT using matched treated and control individuals, on the basis of the unconfoundedness⁷ assumption. This requires that, given a set of observable characteristics X , participation is as good as randomly assigned. Under this assumption, the selection process

⁶If the treatment is randomly assigned the equation for the ATT reduces to $E[Y_i^{t+h}(1)|W_i = 1] - E[Y_i^{t+h}(0)|W_i = 0]$

⁷Or, alternatively, selection on observables, conditional independence, ignorable treatment assignment.

that influences participation and potential outcomes is solely based on the observable characteristics in X :

$$E[Y_i^{t+h}(0)|W_i = 1, X] = E[Y_i^{t+h}(0)|W_i = 0, X] \quad (2)$$

The purest matching estimator is the one based on exact matching in which each treated individual is matched to one or more controls having exactly the same characteristics: if i is a treated unit, j is her match, and X contains K characteristics, then $x_{1i} = x_{1j}, x_{2i} = x_{2j}, \dots, x_{Ki} = x_{Kj}$. Intuitively, the credibility of the unconfoundedness assumption crucially depends on the richness of the dataset in X . However, the downside of high dimensionality is that the likelihood of exact matches dramatically decreases with the dimensions of X , and with the presence of continuous-valued characteristics.

This dimensionality problem can be solved using a balancing score $b(X)$, defined as ‘a function of the observed covariates X such that the conditional distribution of X given $b(X)$ is the same in the treated and control units’ by Rosenbaum and Rubin (1983). They show that if unconfoundedness holds conditioning on X , it also holds conditioning on $b(X)$. The most common balancing score is the Propensity Score widely used in observational studies. Given $b(X)$, matched control units can be chosen using either exact matching, or nearest-neighbour using a distance measure D in the balancing scores metrics, e.g. the Euclidean distance. Once each treated unit is matched with her best control(s), the *ATT* can be simply estimated with mean differences between the outcomes observed in the treated and control group.

4.2 Sequence Analysis and Optimal Matching Algorithm (OMA)

In this study we rely on the approach adopted in Cronin et al. (2019), which consists in estimating the *ATT* at different points in time after the end of the public policy intervention period, using a combination of exact matching and nearest-neighbour matching within cells using a wide array of pre-treatment outcomes. More specifically, we match YEI participants with eligible non-participants by means of exact matching and an OMA on the “pre-YE” sequence of labour market status. The OMA method can be used to measure the dissimilarity between two different sequences. Intuitively, a sequence is a representation of a series of events in a given timespan. The distance between two sequences, say A and B, is measured by the cost associated with the edit operations required to transform sequence B into sequence A. For a detailed description of the OMA in the context of causal inference, see Barban et al. (2017).

Two main elements are needed to define a sequence: i) the sequence length and its spacing (for instance, a 24-month monthly sequence); ii) the “state-space”, i.e. a full list of states of the world mutually exclusive in time.

The pre-treatment sequence for YEI participants is implicitly defined by the starting date of YEI activities and the choice of a pre-treatment period, 36 months in the context of this analysis. Since no starting date is available for non-participants, an imputation procedure is needed in order to align the sequences of treated and non-treated individuals. We first group all individuals in the sample (of treated individuals and potential controls) in cells defined by gender, year of birth, educational attainment (in 8 categories) and district of residence. We select only those potential controls who exactly match the set of these characteristics of at least one treated individual.

Having constructed cells of treated and control units in this way, in each cell there might be more than one treated unit, with potentially different YEI starting dates. Suppose that in cell c there are N treated units with $K (\leq N)$ different YEI starting dates. We create K ‘copies’ of each non-participant, and assign to each copy the K th starting date.⁸ Importantly, creating K copies of non-participants ensures that sampling of control units is done with replacement. This ensures that in each cell each treated unit will have a match, i.e. a control unit with the same characteristics used to construct the cells, and the same imputed YEI starting date.

Once each unit in the sample has a YEI starting date, we construct individual sequences representing individuals’ monthly trajectories in the 36 months before the beginning of YEI. The information contained in the employment histories was recorded in the following mutually exclusive states:

1. Employed
2. Unemployed
3. Occupied (unpaid)
4. Occupied (paid)

⁸This is different from what has been done in other studies based on matching estimators where non-participants are given a random starting date.

5. Inactive

An individual is considered as being ‘inactive’ in a given month both if they are classified as unavailable in the data, and if they are not observed in the administrative registries, indicating that in that month they are neither working nor looking for a job.

This classification produces sequences of the type ‘...55555511111222111...’ that are used in the OMA.

Finally, we perform the OMA within the cells defined as above. We set substitution and insert/delete costs using the transition frequencies estimated in the entire set of cells. Each treated unit is matched with the control units with the closest sequence, i.e. the sequence with the lowest overall cost of transformation. Denote with i the generic treated unit, and with j the generic control unit matched with i using the proposed matching approach. If i is matched with more than one control unit, it implies that there are N_i individuals with the same closest sequence. The *ATT* measured h months after the beginning of YEI is computed as:

$$\frac{1}{N_T} \sum_{i \in W=1} [w_i \cdot y_{1,i}^{t+h} - \sum_j w_{i,j} \cdot y_{0,j}^{t+h}] \quad (3)$$

In the above formula N_t is the total number of treated units, $y_{1,i}^{t+h}$ and $y_{0,j}^{t+h}$ are, respectively, the outcome of the treated unit i measured h months after the beginning of YEI, and the outcome of the matched control j . $w_i = 1/D_i$ is the weight of unit i , and is an inverse function of the distance between her sequence and that of the matched controls. $w_{i,j} = 1/(N_i \cdot D_i)$ is the weight of j , and also takes into account the fact the N_i controls are matched with unit i .

Three different outcomes are considered in the analysis. The first two are the probability of being employed (state (1) vs any other state) and the probability of being unemployed (state (2) vs any other). The third outcome is earnings from employment. All outcomes are measured on a monthly basis, from the first month after the start of the YEI intervention.

5 Results

In order to check that the matching exercise is well performed, the difference in each of the three outcomes between matched, treated and control individuals is estimated in the period before the YEI start. Table 3 shows the results of these estimations 3 years, 2 years and 1 year before the month when treatment started, for each of the different treatment groups (panel A to panel G). It can be observed that the estimated difference is either not significant, or significant but of very low magnitude⁹. This evidence confirms that treated and matched control individuals have identical labour market histories until the YEI intervention start.

The effect of YEI on these outcome variables can be evaluated after the start of the programme. Tables 4 and 5 report the *ATT* estimated 1, 12, 24 and 36 months after the start of the YEI intervention for each of the three outcomes, separately for the seven different treatment groups (panel A to panel G). The last row of each column reports the average of the outcome in the sample for which the effect is being estimated.

When looking at the employment probability (columns (1) to (4) of tables 4 and 5 for each panel), it can be noticed that the effect of YEI during the treatment period is negative for internship participants, and positive for individuals undertaking a hiring support scheme. This is explained by the fact that an individual is occupied (and not employed) during an internship, while he is employed when benefiting from hiring support measures. After the treatment period, the effect on the probability of being employed is positive and significant for all treatments. The effect appears to fade over time, but it is persistent and is still observable up to 3 years after the start of the intervention. The effect is always stronger (higher in magnitude) for individuals undertaking hiring support interventions relative to internships participants, and in both cases the effect is higher the longer the intervention lasts. For example, we observe the biggest effect for individuals participating in a 12 to 18-month hiring support measure 2 years after the intervention start, i.e. a probability of being employed 40.6 percentage points higher than individuals not participating in any YEI activity (column (3) of panel F in table 5), which is almost 100% of the average probability of being employed 24 months after the program start.

On the other hand, the effect of YEI on the probability of being unemployed (columns (5) to (8) of tables 4 and 5 for each panel) is mostly negative and significant, both at different points in time and across treatment groups.¹⁰ The effect on unemployment does not completely offset the observed effect

⁹Wages are measured in absolute value, and are 0 when the individual is unemployed

¹⁰It has to be remembered here that an individual can be employed, unemployed, occupied (e.g. during internships) and inactive, so the effect on employment is not necessarily the opposite of the effect on unemployment.

on employment probability, which suggests a negative effect on other employment status, such as being occupied or inactive.

Finally, the last four columns of each panel report the results from the estimation of the ATT on wages. The effect on wages is estimated on the entire sample of individuals, including the ones who are unemployed in a given month, and for whom wages are recorded as 0¹¹. Thus, the estimated effect is the combined result of the effects on unemployment probability and on wages.

The impact of YEI on wages is positive and significant for all treatments. The estimated coefficients measure the difference in absolute value of the average wages between the treated and control group. Even after the treatment period, the effect is positive and persists for at least three years from the start of the intervention. 36 months after the intervention starts, the biggest effect is observed for individuals undertaking both internship and hiring support, for whom wages are on average 313 euros higher than individuals not participating in any YEI activity. This coefficient represents 89% of the average wage of all individuals 36 months after the intervention start (including the unemployed ones with zero wage).

Table 3: Placebo

Panel A: Internship 6 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months -0.0002 (0.002)	-24 Months 0.002 (0.002)	-12 Months 0.001 (0.002)	-36 Months 0.002* (0.001)	-24 Months 0.001 (0.001)	-12 Months 0.001 (0.002)	-36 Months -1.736 (1.551)	-24 Months -1.934 (1.588)	-12 Months -6.561*** (1.635)
Panel B: Internship 12 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months 0.001* (0.001)	-24 Months 0.001 (0.001)	-12 Months 0.001 (0.001)	-36 Months 0.001** (0.0005)	-24 Months 0.001* (0.001)	-12 Months 0.0003 (0.001)	-36 Months -3.855*** (0.488)	-24 Months -5.171*** (0.505)	-12 Months -6.198*** (0.493)
Panel C: Internship 18 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months 0.002 (0.003)	-24 Months 0.0003 (0.003)	-12 Months 0.002 (0.003)	-36 Months 0.002 (0.001)	-24 Months 0.001 (0.002)	-12 Months 0.00004 (0.003)	-36 Months -2.134 (1.811)	-24 Months -1.488 (1.873)	-12 Months -6.632*** (1.804)
Panel D: Hiring 6 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months -0.001 (0.003)	-24 Months -0.001 (0.003)	-12 Months -0.001 (0.003)	-36 Months 0.004** (0.002)	-24 Months 0.001 (0.002)	-12 Months -0.004 (0.003)	-36 Months -0.453 (2.055)	-24 Months -4.391** (2.068)	-12 Months -7.086*** (1.973)
Panel E: Hiring 12 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months -0.0001 (0.003)	-24 Months -0.002 (0.003)	-12 Months -0.0004 (0.003)	-36 Months 0.002 (0.002)	-24 Months 0.001 (0.002)	-12 Months 0.0003 (0.003)	-36 Months 0.970 (1.897)	-24 Months -3.343* (1.866)	-12 Months -3.025* (1.805)
Panel F: Hiring 18 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months -0.0005 (0.005)	-24 Months -0.001 (0.005)	-12 Months -0.002 (0.004)	-36 Months 0.002 (0.002)	-24 Months 0.003 (0.003)	-12 Months -0.005 (0.005)	-36 Months 6.873** (3.016)	-24 Months 2.606 (3.002)	-12 Months -6.901*** (2.500)
Panel G: Internship 12 months + Hiring 12 months									
Dep. Variable:	Employment probability			Unemployment probability			Wages		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
YEI Effect	-36 Months 0.001 (0.001)	-24 Months 0.001 (0.001)	-12 Months 0.001 (0.001)	-36 Months 0.001 (0.001)	-24 Months 0.001 (0.001)	-12 Months -0.0001 (0.002)	-36 Months -2.471*** (0.761)	-24 Months -3.200*** (0.777)	-12 Months -4.695*** (0.739)

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

¹¹Table 8 in Appendix B shows the results on the estimation performed on the sub-sample of employed individuals only, both in absolute value and in log (effect in percentage change)

Table 4: Main effect -- Internships

Panel A: Internship 6 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months	(9) 1 Month	(10) 12 Months	(11) 24 Months	(12) 36 Months
YEI Effect	-0.125*** (0.002)	0.081*** (0.004)	0.091*** (0.004)	0.077*** (0.004)	-0.437*** (0.003)	-0.042*** (0.003)	-0.050*** (0.002)	-0.038*** (0.002)	427.430*** (2.028)	114.157*** (3.014)	140.633*** (3.437)	145.190*** (3.832)
Mean:	0.09	0.255	0.38	0.475	0.179	0.149	0.124	0.098	95.822	151.551	236.881	317.551

Panel B: Internship 12 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months	(9) 1 Month	(10) 12 Months	(11) 24 Months	(12) 36 Months
YEI Effect	-0.117*** (0.001)	-0.097*** (0.001)	0.160*** (0.002)	0.157*** (0.002)	-0.552*** (0.001)	0.192*** (0.001)	-0.027*** (0.001)	-0.039*** (0.001)	543.189*** (0.660)	196.293*** (1.149)	179.681*** (1.384)	198.060*** (1.519)
Mean:	0.072	0.233	0.392	0.494	0.19	0.183	0.133	0.101	106.238	158.701	248.543	334.926

Panel C: Internship 18 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months	(9) 1 Month	(10) 12 Months	(11) 24 Months	(12) 36 Months
YEI Effect	-0.109*** (0.003)	-0.331*** (0.004)	0.159*** (0.005)	0.177*** (0.005)	-0.531*** (0.004)	-0.180*** (0.004)	0.021*** (0.004)	-0.026*** (0.003)	556.018*** (2.517)	393.152*** (3.345)	198.197*** (4.849)	229.600*** (5.261)
Mean:	0.069	0.196	0.358	0.465	0.197	0.148	0.143	0.109	88.007	153.24	226.455	312.794

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 5: Main effect -- Hiring support & Both

Panel D: Hiring 6 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	0.793*** (0.002)	0.363*** (0.004)	0.238*** (0.004)	0.191*** (0.004)	-0.487*** (0.003)	-0.118*** (0.003)	-0.067*** (0.002)	-0.054*** (0.002)	431.029*** (1.541)	212.508*** (2.334)	161.818*** (2.610)	145.594*** (2.803)
Mean:	0.211	0.301	0.403	0.493	0.166	0.145	0.13	0.104	120.565	163.133	222.976	287.187

Panel E: Hiring 12 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	0.805*** (0.002)	0.507*** (0.003)	0.328*** (0.004)	0.236*** (0.004)	-0.507*** (0.003)	-0.183*** (0.002)	-0.092*** (0.002)	-0.048*** (0.002)	455.788*** (1.607)	311.097*** (2.255)	225.056*** (2.633)	182.868*** (2.845)
Mean:	0.356	0.469	0.537	0.587	0.276	0.15	0.113	0.085	210.787	268.531	319.832	368.824

Panel F: Hiring 18 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	0.810*** (0.003)	0.612*** (0.004)	0.406*** (0.005)	0.305*** (0.005)	-0.520*** (0.004)	-0.211*** (0.003)	-0.093*** (0.003)	-0.068*** (0.003)	455.663*** (2.112)	360.455*** (2.666)	255.970*** (3.342)	206.162*** (3.554)
Mean:	0.26	0.353	0.422	0.494	0.194	0.138	0.128	0.103	154.556	196.92	237.071	290.34

Panel G: Internship 12 months + Hiring 12 months

Dep. Variable:	Employment probability				Unemployment probability				Wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	-0.112*** (0.001)	0.236*** (0.002)	0.443*** (0.002)	0.317*** (0.002)	-0.565*** (0.002)	0.038*** (0.002)	-0.106*** (0.001)	-0.064*** (0.001)	547.396*** (1.014)	304.705*** (1.588)	369.283*** (1.676)	313.086*** (1.962)
Mean:	0.082	0.278	0.437	0.531	0.211	0.176	0.127	0.097	111.645	175.477	273.032	352.168

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

6 Heterogeneity of effects

This section discusses the results from the estimation of the YEI effect on the employment probability and wages for different groups of individuals, defined according to some demographic characteristics. Since NEET is a heterogeneous group across several dimensions, as age and education level, the goal is to assess which types of interventions were the most effective for different groups.

6.1 Heterogeneity by age group

Table 6 reports the estimated ATT for three different age groups: individuals who, at the start of the YEI program, are aged respectively 15-19, 20-24 and 25-29. To make it easier to interpret the coefficients, table 9 in the Appendix reports the average value of the outcomes for each of the estimation samples.

Internship programs with shorter durations seem to have a bigger positive effect on the probability of being employed after the start of the intervention for the oldest age group, especially in the case of the 1- to 6-month internship (columns (2) to (4) of panel A), while the opposite appears to be true for the longer (12 to 18 months) internship program 3 years after the program start (column (4) of panel C). When looking at hiring support schemes and internship + hiring support schemes, no striking heterogeneity emerges. Only for the longest hiring support intervention (panel F), we observe that the positive effect on the employment probability is stronger for the youngest age group.

The effect on wages is estimated for the entire sample of individuals, including those who are unemployed; thus, the same considerations noted above apply here. Columns (5) to (8) of each panel in table 6 report the estimated coefficients. Overall, it can be noticed that, for all treatments and regardless of the time since YEI start, the positive effect of YEI on wages is greater in magnitude (in absolute value) for the older age groups, which are also the groups with the highest average wages (see table 9 in the Appendix). Table 11 in Appendix B shows the results of the estimate performed on the sub-sample of employed individuals only, both in absolute value and in log (effect in percentage change). When looking at percentage changes (columns (5) to (8)) it appears that, in the case of internships, even when paired with hiring support schemes, the group benefiting the most is the oldest in age, while for hiring support schemes the magnitude of the effect is the highest for the youngest groups of individuals.

6.2 Heterogeneity by educational attainment

Table 7 shows the results from the estimation of the YEI effect separately for three different groups, defined by the highest educational attainment: individuals with less than secondary education, individuals with secondary and post-secondary qualifications, and individuals who attained higher qualifications. Table 10 displays the average value of each outcome in each estimation sample.

Focusing on the effects on the employment probability, it emerges that, for all treatments except the shorter internship, the YEI participation coefficients are slightly bigger in magnitude for the least-educated group of individuals.

On the other hand, results from the wage regressions (columns (5) to (8) of each panel) show that the positive effect is always greater in magnitude, when measured in absolute value, for the group of individuals with the highest level of education. This group is also the one with the highest average wage in all points in time (as shown in table 10). This pattern holds even when looking at the effect in percentage changes estimated only for employed individuals (table 12 in Appendix B, columns (5) to (8)).

Overall, the results from the analysis performed separately on different demographic groups show that there is no group of individuals for whom the treatment is ineffective.

Table 6: Heterogeneity by Age

Panel A: Internship 6 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	-0.086*** (0.004)	0.062*** (0.009)	0.078*** (0.009)	0.077*** (0.009)	290.256*** (3.468)	54.518*** (4.653)	63.261*** (5.156)	71.698*** (5.582)
[20, 24]	-0.124*** (0.003)	0.077*** (0.005)	0.074*** (0.005)	0.060*** (0.005)	444.224*** (2.587)	123.988*** (3.927)	142.766*** (4.603)	143.726*** (5.087)
[25, 29]	-0.143*** (0.004)	0.095*** (0.008)	0.126*** (0.008)	0.109*** (0.008)	451.882*** (4.460)	120.396*** (6.793)	167.175*** (7.459)	176.465*** (8.476)

Panel B: Internship 12 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	-0.105*** (0.002)	-0.084*** (0.003)	0.162*** (0.004)	0.142*** (0.004)	443.967*** (1.006)	121.086*** (1.861)	118.240*** (2.126)	110.636*** (2.286)
[20, 24]	-0.111*** (0.001)	-0.097*** (0.002)	0.152*** (0.002)	0.153*** (0.002)	550.452*** (0.834)	200.370*** (1.514)	176.291*** (1.831)	196.920*** (1.987)
[25, 29]	-0.131*** (0.002)	-0.101*** (0.003)	0.174*** (0.003)	0.169*** (0.003)	557.435*** (1.510)	209.683*** (2.519)	202.814*** (3.040)	224.291*** (3.387)

Panel C: Internship 18 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	-0.104*** (0.005)	-0.337*** (0.008)	0.159*** (0.011)	0.224*** (0.010)	417.988*** (3.316)	247.806*** (4.870)	114.675*** (6.299)	172.733*** (6.510)
[20, 24]	-0.105*** (0.003)	-0.333*** (0.005)	0.157*** (0.007)	0.186*** (0.007)	559.362*** (3.203)	395.956*** (4.327)	190.174*** (6.340)	227.267*** (6.849)
[25, 29]	-0.116*** (0.006)	-0.326*** (0.008)	0.163*** (0.012)	0.153*** (0.012)	577.809*** (6.145)	417.265*** (8.035)	227.720*** (11.759)	244.612*** (12.905)

Panel D: Hiring 6 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	0.832*** (0.004)	0.382*** (0.006)	0.250*** (0.007)	0.163*** (0.006)	425.141*** (1.811)	206.051*** (3.348)	163.382*** (3.810)	127.664*** (4.035)
[20, 24]	0.820*** (0.003)	0.376*** (0.005)	0.240*** (0.006)	0.200*** (0.006)	443.621*** (2.118)	222.956*** (3.413)	159.609*** (3.753)	147.099*** (4.062)
[25, 29]	0.737*** (0.005)	0.335*** (0.008)	0.231*** (0.008)	0.192*** (0.008)	415.381*** (3.852)	200.221*** (5.346)	164.326*** (6.078)	151.362*** (6.504)

Panel E: Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	0.837*** (0.004)	0.509*** (0.006)	0.334*** (0.007)	0.233*** (0.007)	421.255*** (2.211)	279.863*** (3.622)	199.298*** (4.152)	159.594*** (4.552)
[20, 24]	0.818*** (0.003)	0.506*** (0.005)	0.327*** (0.005)	0.243*** (0.005)	457.608*** (2.199)	306.656*** (3.299)	224.052*** (3.879)	190.623*** (4.195)
[25, 29]	0.767*** (0.004)	0.506*** (0.006)	0.325*** (0.006)	0.226*** (0.006)	474.978*** (3.578)	337.995*** (4.594)	243.072*** (5.390)	185.566*** (5.788)

Panel F: Hiring 18 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	0.833*** (0.006)	0.640*** (0.008)	0.474*** (0.009)	0.344*** (0.010)	437.737*** (2.470)	325.433*** (4.170)	261.204*** (4.994)	201.053*** (5.522)
[20, 24]	0.824*** (0.005)	0.622*** (0.006)	0.397*** (0.007)	0.307*** (0.008)	445.373*** (2.936)	363.443*** (3.758)	240.060*** (4.616)	205.667*** (5.065)
[25, 29]	0.786*** (0.006)	0.589*** (0.007)	0.396*** (0.009)	0.290*** (0.009)	475.056*** (4.461)	367.722*** (5.429)	275.391*** (6.964)	208.458*** (7.221)

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	-0.105*** (0.002)	0.209*** (0.005)	0.419*** (0.004)	0.313*** (0.004)	437.818*** (1.282)	211.692*** (2.213)	263.266*** (2.175)	212.521*** (2.486)
[20, 24]	-0.104*** (0.002)	0.244*** (0.003)	0.443*** (0.003)	0.312*** (0.003)	565.926*** (1.400)	319.138*** (2.212)	376.119*** (2.339)	314.912*** (2.734)
[25, 29]	-0.131*** (0.003)	0.231*** (0.005)	0.452*** (0.004)	0.329*** (0.004)	548.294*** (2.303)	308.118*** (3.586)	392.848*** (3.791)	344.972*** (4.464)

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 7: Heterogeneity by Educational Attainment

Panel A: Internship 6 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	-0.087*** (0.005)	0.006 (0.010)	0.077*** (0.010)	0.085*** (0.011)	224.014*** (4.314)	19.136*** (5.297)	39.060*** (5.934)	61.161*** (6.441)
Secondary	-0.142*** (0.003)	0.099*** (0.006)	0.078*** (0.006)	0.072*** (0.006)	376.217*** (2.452)	96.407*** (3.511)	98.931*** (3.948)	114.865*** (4.423)
Higher	-0.126*** (0.003)	0.093*** (0.006)	0.105*** (0.006)	0.078*** (0.006)	529.551*** (3.275)	157.596*** (5.470)	202.770*** (6.173)	193.711*** (6.875)

Panel B: Internship 12 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	-0.107*** (0.003)	-0.061*** (0.005)	0.216*** (0.006)	0.183*** (0.006)	403.432*** (1.764)	128.805*** (2.915)	130.891*** (3.437)	124.098*** (3.704)
Secondary	-0.129*** (0.001)	-0.126*** (0.002)	0.144*** (0.002)	0.145*** (0.002)	467.939*** (0.791)	142.577*** (1.356)	134.389*** (1.611)	145.223*** (1.739)
Higher	-0.112*** (0.001)	-0.087*** (0.002)	0.162*** (0.002)	0.160*** (0.002)	596.442*** (0.991)	230.570*** (1.808)	207.644*** (2.183)	232.654*** (2.390)

Panel C: Internship 18 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	-0.101*** (0.007)	-0.236*** (0.010)	0.182*** (0.016)	0.277*** (0.015)	355.930*** (5.079)	262.976*** (6.628)	109.711*** (8.607)	165.629*** (8.971)
Secondary	-0.120*** (0.004)	-0.327*** (0.006)	0.118*** (0.009)	0.162*** (0.009)	472.567*** (3.207)	323.935*** (4.216)	125.548*** (5.961)	173.160*** (6.301)
Higher	-0.105*** (0.004)	-0.343*** (0.005)	0.175*** (0.008)	0.172*** (0.007)	615.629*** (3.661)	438.646*** (4.987)	240.634*** (7.421)	262.042*** (8.103)

Panel D: Hiring 6 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	0.778*** (0.004)	0.375*** (0.006)	0.251*** (0.006)	0.204*** (0.006)	406.652*** (2.170)	199.904*** (3.379)	150.238*** (3.697)	127.683*** (3.882)
Secondary	0.791*** (0.003)	0.353*** (0.005)	0.239*** (0.005)	0.183*** (0.005)	410.601*** (1.949)	201.727*** (2.896)	147.440*** (3.283)	129.675*** (3.413)
Higher	0.830*** (0.008)	0.365*** (0.013)	0.211*** (0.014)	0.190*** (0.013)	542.477*** (7.063)	270.776*** (11.158)	228.483*** (12.283)	230.155*** (13.683)

Panel E: Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	0.790*** (0.004)	0.520*** (0.006)	0.359*** (0.006)	0.268*** (0.006)	430.692*** (2.452)	300.641*** (3.404)	220.684*** (3.870)	175.744*** (4.144)
Secondary	0.804*** (0.003)	0.499*** (0.004)	0.308*** (0.005)	0.226*** (0.005)	429.666*** (2.022)	291.750*** (2.839)	194.701*** (3.319)	166.335*** (3.577)
Higher	0.839*** (0.006)	0.506*** (0.009)	0.329*** (0.010)	0.207*** (0.010)	573.738*** (5.529)	384.194*** (7.981)	318.646*** (9.367)	242.160*** (10.125)

Panel F: Hiring 18 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	0.790*** (0.006)	0.616*** (0.007)	0.419*** (0.008)	0.324*** (0.009)	416.597*** (3.102)	333.018*** (3.981)	236.753*** (4.789)	189.523*** (5.251)
Secondary	0.820*** (0.004)	0.588*** (0.005)	0.395*** (0.006)	0.297*** (0.006)	446.274*** (2.469)	336.532*** (3.303)	250.234*** (4.308)	198.954*** (4.300)
Higher	0.834*** (0.010)	0.680*** (0.013)	0.408*** (0.016)	0.280*** (0.017)	593.987*** (10.104)	517.518*** (12.006)	327.880*** (14.913)	276.175*** (16.988)

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(5) 36 Months	(6) 1 Month	(7) 12 Months	(8) 24 Months	(8) 36 Months
Education:								
Less than secondary	-0.106*** (0.004)	0.263*** (0.008)	0.520*** (0.007)	0.376*** (0.007)	401.132*** (2.410)	215.599*** (3.875)	313.974*** (3.821)	237.625*** (4.494)
Secondary	-0.127*** (0.002)	0.183*** (0.003)	0.425*** (0.003)	0.319*** (0.003)	465.022*** (1.091)	233.493*** (1.774)	293.726*** (1.799)	252.024*** (2.082)
Higher	-0.103*** (0.002)	0.266*** (0.004)	0.443*** (0.003)	0.306*** (0.003)	622.289*** (1.685)	363.690*** (2.730)	425.815*** (2.891)	363.517*** (3.407)

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

7 Conclusions

The Youth Employment Initiative supports measures aimed at reducing youth unemployment in the European Member States where young people have been more severely hit by the 2008 economic crisis.

In Portugal, YEI supports a set of specific actions aimed at young NEETs in regions experiencing youth unemployment rates above 25%. These measures include internships and hiring support, aiming at creating suitable conditions to promote the employability of young people looking for a job, which are the focus of the evaluation performed in this report.

Among all individuals participating in the selected YEI activities between 2009 and 2018, almost half undertook an internship with duration 7 to 12 months, which is the most popular YEI intervention in

the period object of the analysis, while approximately 14% benefited from hiring support. Another 1/5 of the population studied participated in an intervention entailing both internship and hiring support of between 7 and 12 months each.

The CIE of the selected YEI measures in Portugal shows that the initiative was able to improve young individuals' labour market outcomes both in the shorter and medium term.

For individuals participating to YEI interventions, 36 months after the intervention start, the probability of being employed is higher, with the effect being stronger the longer the intervention lasts, and for hiring support interventions relative to internships. More specifically, the average effect on employment probability goes from 7.7 pp for individuals undertaking an internship of up to 6 months to 31.7pp for individuals participating in both a 7 to 12-month internship, and 7- to 12-month hiring support. The effect goes partly through a lower probability of being unemployed (3.8 pp lower and 6.4 pp lower respectively for the two groups of individuals mentioned above). On average, individuals participating in YEI activities earn between 145 and 313 euros more, respectively for the shortest internship and for internship + hiring support, more than their non-treated counterpart 3 years after the program start, which is between 47% and 89% of the average wages of all individuals in the samples.

When looking at the YEI effects separately for different groups of individuals defined by demographic characteristics, namely age and educational background, it emerges that the initiative is effective for all sub-groups. Some heterogeneity is present: the oldest individuals (25 to 29 years old) benefit more, at least in terms of employment probability, from a shorter duration in case of internships; moreover internship programs seem to have a greater positive effect for individuals with higher qualifications, while hiring support schemes seem to be more effective for less educated individuals, even when coupled with internships.

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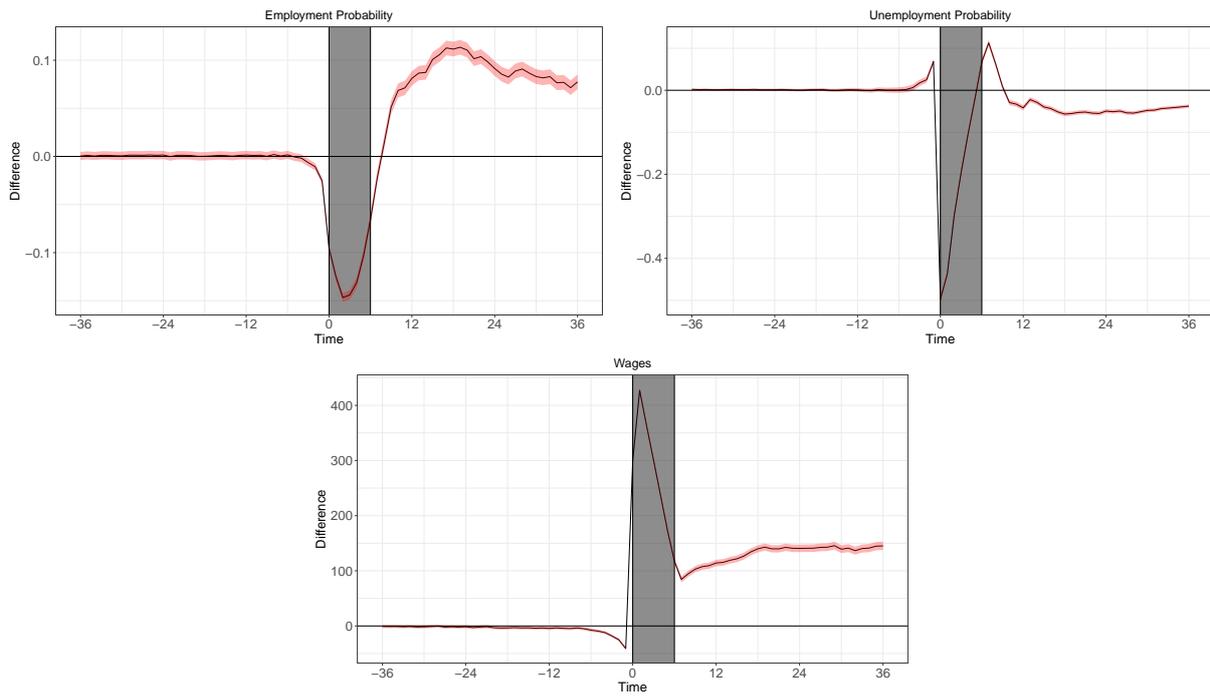
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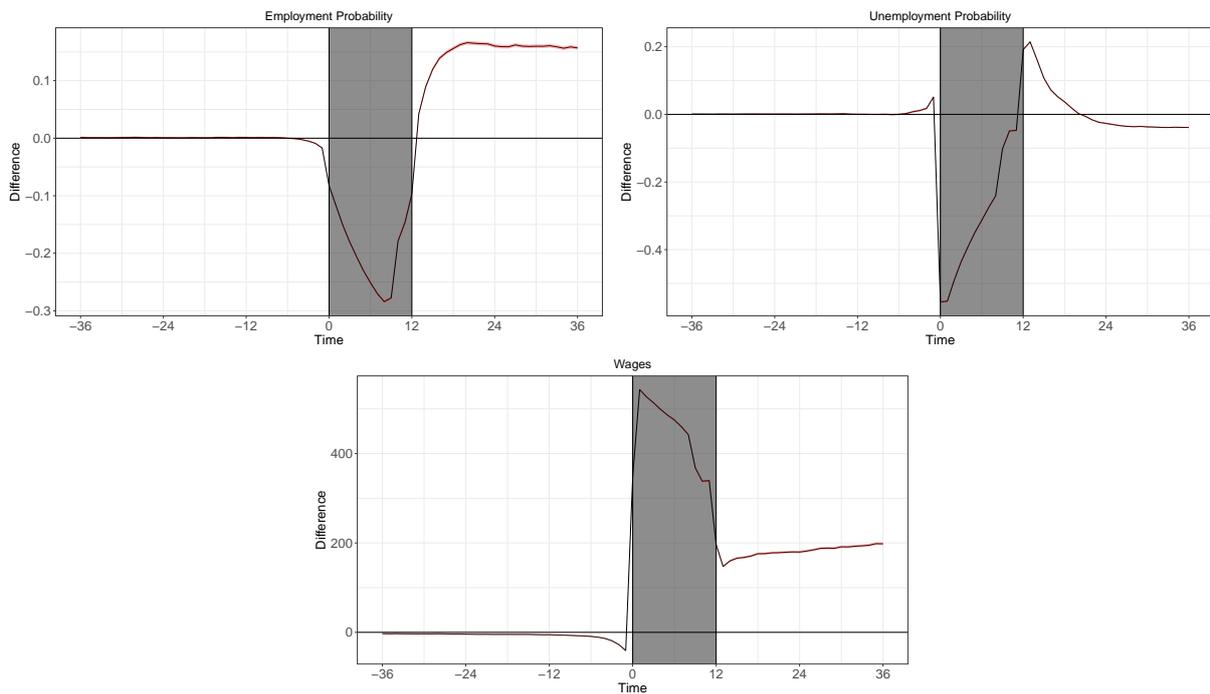
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Appendix A - Graphical representation

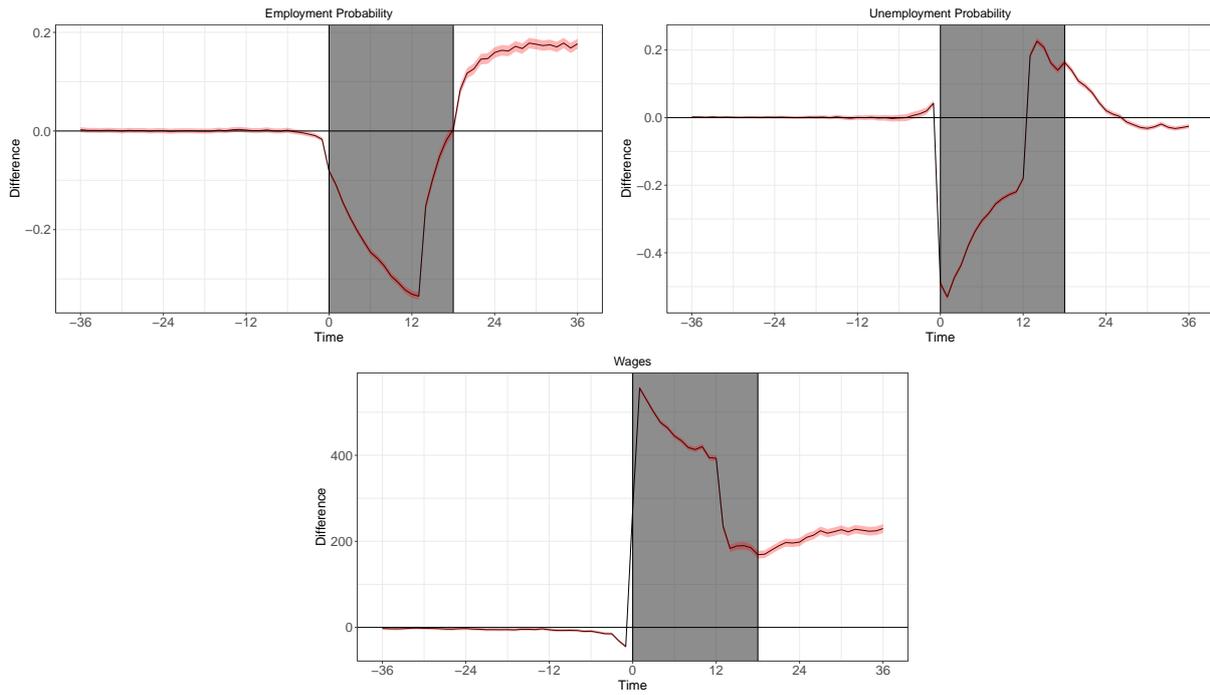
Internship 6 months



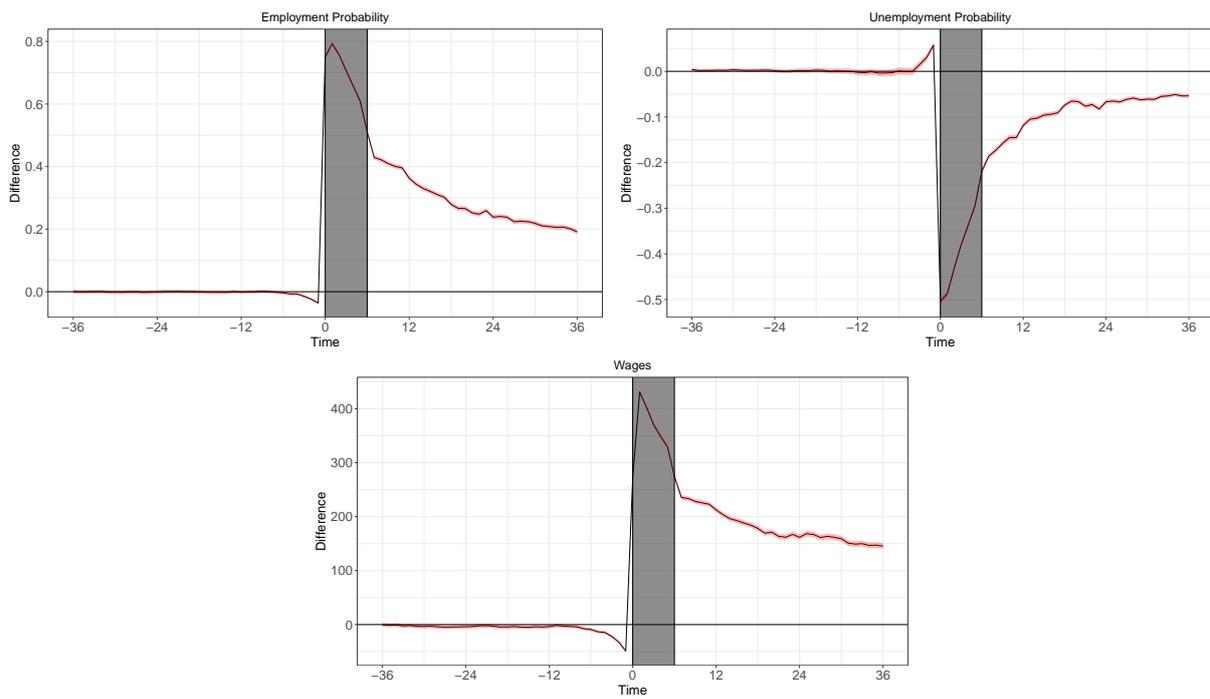
Internship 12 months



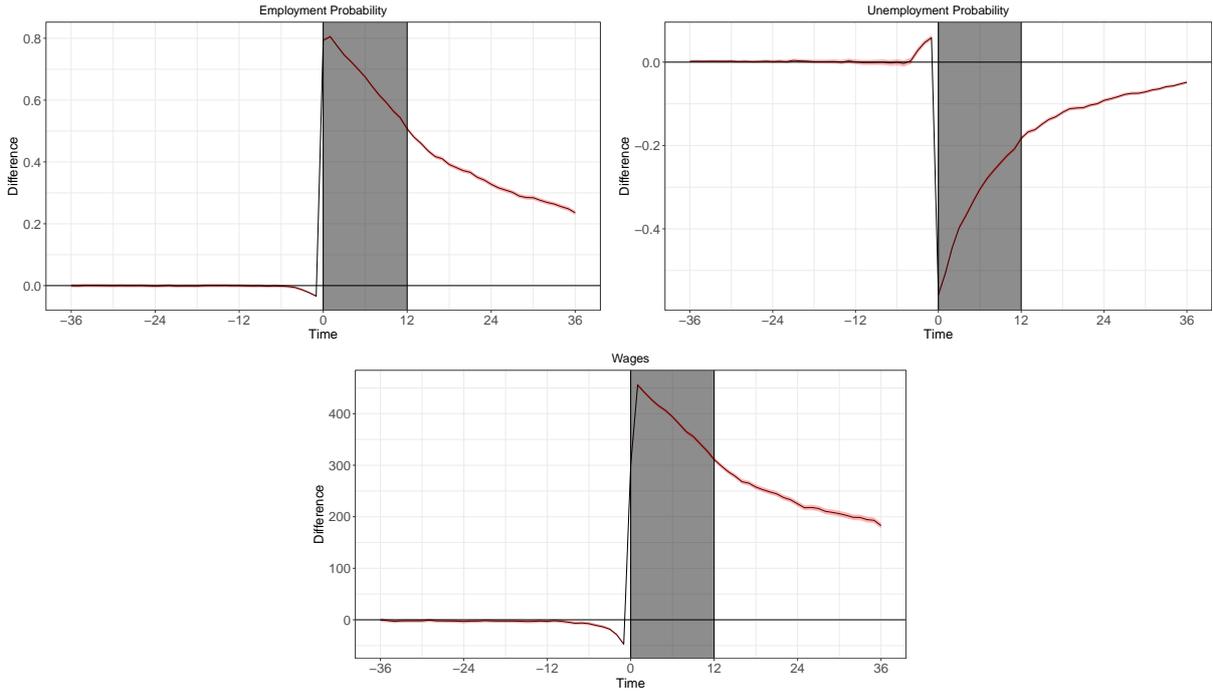
Internship 18 months



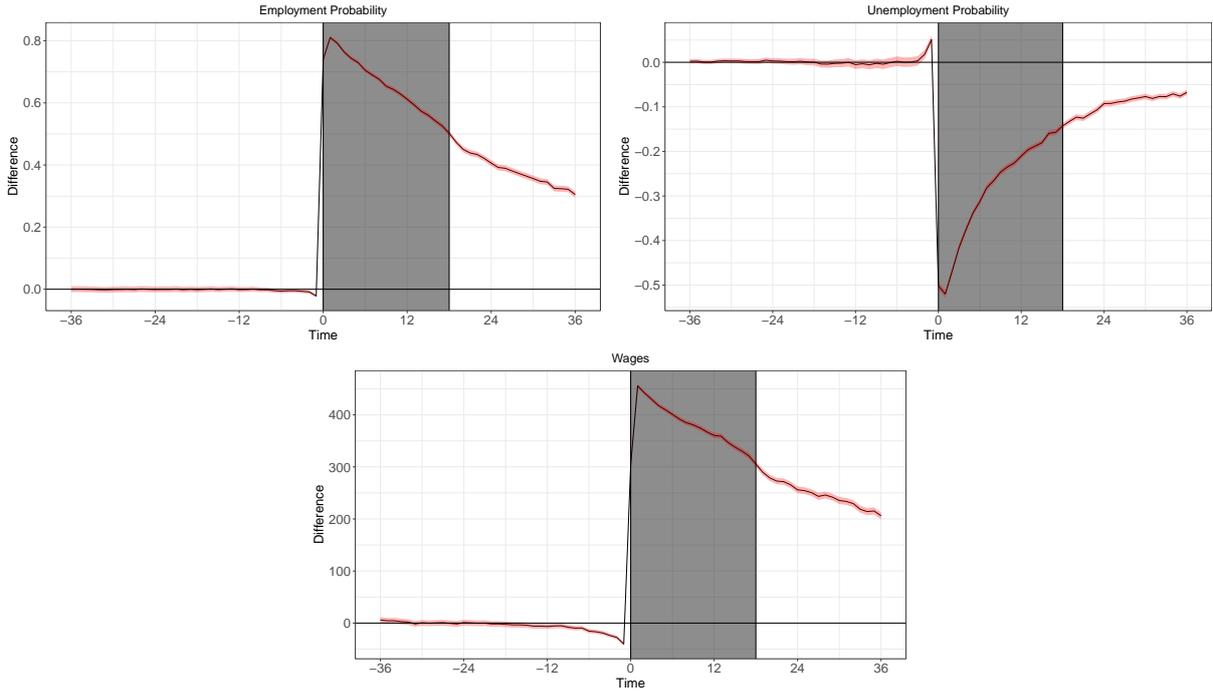
Hiring 6 months



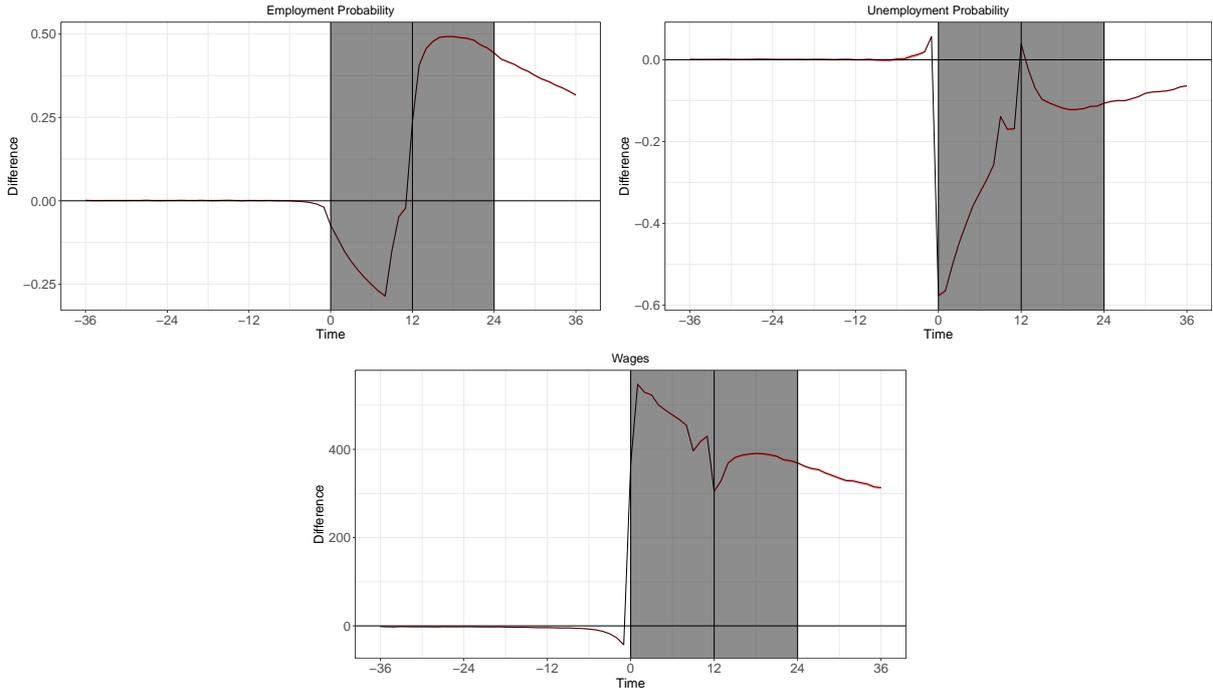
Hiring 12 months



Hiring 18 months



Internship 12 months + Hiring 12 months



Appendix B

Table 8: Additional wage regressions

Panel A: Internship 6 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	85.092*** (5.417)	121.665*** (5.002)	152.516*** (4.505)	154.779*** (4.582)	0.277*** (0.013)	0.204*** (0.009)	0.204*** (0.008)	0.181*** (0.006)

Panel B: Internship 12 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	141.638*** (1.779)	-24.079*** (1.940)	125.604*** (1.668)	129.666*** (1.705)	0.440*** (0.004)	-0.111*** (0.005)	0.212*** (0.003)	0.189*** (0.003)

Panel C: Internship 18 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	139.279*** (8.256)	50.977*** (5.662)	150.779*** (6.131)	145.766*** (6.141)	0.403*** (0.017)	0.177*** (0.011)	0.246*** (0.011)	0.200*** (0.009)

Panel D: Hiring 6 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	69.647*** (3.592)	35.389*** (3.143)	39.256*** (2.975)	45.819*** (2.841)	0.266*** (0.008)	0.111*** (0.007)	0.108*** (0.006)	0.104*** (0.005)

Panel E: Hiring 12 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	103.299*** (3.038)	58.804*** (2.729)	54.619*** (2.763)	48.570*** (2.734)	0.345*** (0.006)	0.166*** (0.005)	0.125*** (0.005)	0.106*** (0.005)

Panel F: Hiring 18 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	92.926*** (4.625)	65.522*** (3.704)	45.959*** (3.981)	39.033*** (3.583)	0.310*** (0.010)	0.192*** (0.009)	0.131*** (0.008)	0.102*** (0.007)

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Wages				Log Wages			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
YEI Effect	147.358*** (2.836)	5.956** (2.622)	100.518*** (2.075)	111.370*** (2.153)	0.429*** (0.006)	0.008 (0.006)	0.229*** (0.003)	0.208*** (0.003)

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 9: Mean value of the outcomes in sub-samples defined by age group

Panel A: Internship 6 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.047	0.231	0.388	0.496	33.878	104.316	189.168	260.746
[20, 24]	0.058	0.233	0.370	0.482	66.598	134.429	232.652	327.942
[25, 29]	0.195	0.325	0.394	0.442	210.223	226.866	282.797	336.603

Panel B: Internship 12 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.044	0.231	0.402	0.511	37.195	110.435	196.549	268.704
[20, 24]	0.053	0.223	0.390	0.503	84.696	148.114	250.033	348.761
[25, 29]	0.139	0.260	0.390	0.458	214.470	223.675	287.715	356.285

Panel C: Internship 18 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.039	0.186	0.346	0.464	22.093	81.460	153.978	226.412
[20, 24]	0.044	0.186	0.352	0.469	63.255	143.383	232.084	333.881
[25, 29]	0.174	0.238	0.391	0.456	238.494	268.838	299.178	358.874

Panel D: Hiring 6 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.054	0.191	0.337	0.473	28.397	90.722	166.957	250.123
[20, 24]	0.181	0.289	0.399	0.486	98.378	149.138	213.937	279.067
[25, 29]	0.496	0.480	0.507	0.534	296.218	294.380	321.002	356.246

Panel E: Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.142	0.375	0.507	0.578	83.409	189.717	267.293	323.391
[20, 24]	0.337	0.452	0.524	0.583	192.197	251.642	307.058	363.345
[25, 29]	0.549	0.566	0.579	0.598	336.668	353.606	378.564	412.186

Panel F: Hiring 18 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.048	0.197	0.327	0.453	26.080	92.552	154.458	229.747
[20, 24]	0.202	0.321	0.403	0.481	113.429	166.891	215.287	275.185
[25, 29]	0.517	0.529	0.529	0.548	318.840	325.814	336.416	362.095

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Age Class:								
[15, 19]	0.038	0.230	0.414	0.545	32.742	111.897	210.775	294.495
[20, 24]	0.060	0.270	0.435	0.535	95.678	169.270	276.010	366.374
[25, 29]	0.183	0.353	0.469	0.506	239.013	262.954	338.071	386.363

Note: The table reports the mean value of the employment probability and wages respectively 1, 12, 24 and 36 months after the YEI intervention's

start separately for the three sub-samples defined by age groups.

Table 10: Mean value of the outcomes in sub-samples defined by educational attainment

Panel A: Internship 6 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.095	0.239	0.321	0.387	98.757	119.260	166.428	209.801
Secondary	0.109	0.274	0.399	0.485	88.621	138.991	209.749	273.673
Higher	0.068	0.240	0.378	0.492	102.500	175.139	288.059	398.341

Panel B: Internship 12 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.092	0.217	0.345	0.413	131.976	137.074	181.893	229.764
Secondary	0.077	0.250	0.402	0.493	81.710	135.703	210.927	278.008
Higher	0.063	0.220	0.391	0.506	124.722	182.881	292.771	402.493

Panel C: Internship 18 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.028	0.119	0.268	0.355	46.560	82.957	127.104	178.952
Secondary	0.078	0.219	0.371	0.475	72.303	129.363	183.297	250.443
Higher	0.071	0.198	0.370	0.485	109.741	188.055	282.637	391.601

Panel D: Hiring 6 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.252	0.293	0.368	0.453	134.477	153.290	194.955	250.935
Secondary	0.172	0.296	0.417	0.510	98.831	155.442	223.312	290.930
Higher	0.289	0.374	0.487	0.562	206.591	266.479	358.941	439.527

Panel E: Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.388	0.446	0.486	0.523	213.492	241.145	273.060	306.786
Secondary	0.337	0.484	0.564	0.618	196.957	266.301	321.464	373.459
Higher	0.348	0.466	0.557	0.618	259.749	346.943	431.788	507.349

Panel F: Hiring 18 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.293	0.360	0.395	0.455	155.289	184.780	204.317	248.143
Secondary	0.232	0.340	0.428	0.507	139.889	187.969	236.128	291.103
Higher	0.315	0.411	0.488	0.559	249.538	304.114	371.439	450.257

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Employment probability				Wages			
	1 Month	12 Months	24 Months	36 Months	1 Month	12 Months	24 Months	36 Months
Education:								
Less than secondary	0.093	0.285	0.427	0.481	128.076	157.971	225.981	268.727
Secondary	0.092	0.287	0.447	0.541	91.333	154.606	240.292	308.890
Higher	0.067	0.266	0.428	0.528	133.033	204.193	321.916	420.951

Note: The table reports the mean value of the employment probability and wages respectively 1, 12, 24 and 36 months after the YEI intervention's start separately for the sub-samples defined by educational attainment.

Table 11: Heterogeneity by Age -- Wages and Log Wages

Panel A: Internship 6 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	87.320*** (10.637)	42.118*** (6.423)	34.288*** (5.099)	54.523*** (4.481)	0.278*** (0.037)	0.091*** (0.022)	0.039** (0.016)	0.121*** (0.011)
[20, 24]	115.159*** (7.901)	148.410*** (6.575)	179.975*** (5.965)	172.995*** (5.861)	0.305*** (0.020)	0.246*** (0.013)	0.246*** (0.010)	0.204*** (0.008)
[25, 29]	38.303*** (8.398)	100.838*** (10.210)	148.020*** (9.747)	157.752*** (10.949)	0.240*** (0.018)	0.168*** (0.015)	0.191*** (0.015)	0.160*** (0.014)

Panel B: Internship 12 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	147.115*** (3.271)	-37.480*** (2.842)	51.907*** (1.896)	51.808*** (1.871)	0.512*** (0.011)	-0.173*** (0.010)	0.122*** (0.005)	0.116*** (0.005)
[20, 24]	167.395*** (2.472)	-15.931*** (2.621)	129.178*** (2.191)	131.390*** (2.169)	0.490*** (0.005)	-0.101*** (0.007)	0.217*** (0.004)	0.191*** (0.003)
[25, 29]	97.995*** (2.843)	-39.528*** (3.858)	139.095*** (3.697)	145.470*** (4.049)	0.339*** (0.006)	-0.119*** (0.009)	0.226*** (0.006)	0.201*** (0.006)

Panel C: Internship 18 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	157.532*** (11.525)	23.067*** (7.309)	72.195*** (6.514)	72.525*** (5.689)	0.514*** (0.039)	0.085*** (0.024)	0.166*** (0.018)	0.159*** (0.013)
[20, 24]	151.458*** (12.477)	45.058*** (7.618)	142.993*** (7.859)	136.886*** (7.839)	0.416*** (0.026)	0.152*** (0.015)	0.236*** (0.014)	0.198*** (0.012)
[25, 29]	125.047*** (12.128)	64.770*** (11.005)	177.406*** (14.490)	180.373*** (15.390)	0.374*** (0.022)	0.234*** (0.021)	0.275*** (0.023)	0.216*** (0.022)

Panel D: Hiring 6 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	114.199*** (7.160)	50.504*** (4.271)	61.145*** (4.006)	56.972*** (3.381)	0.411*** (0.026)	0.157*** (0.014)	0.177*** (0.011)	0.147*** (0.009)
[20, 24]	107.238*** (5.546)	56.611*** (4.724)	40.214*** (4.123)	48.899*** (4.032)	0.348*** (0.014)	0.162*** (0.011)	0.111*** (0.009)	0.113*** (0.008)
[25, 29]	20.625*** (5.465)	2.640 (5.852)	28.850*** (6.592)	33.710*** (6.731)	0.140*** (0.011)	0.025** (0.013)	0.075*** (0.012)	0.066*** (0.011)

Panel E: Hiring 12 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	117.689*** (4.446)	58.902*** (3.895)	47.189*** (3.498)	41.344*** (3.459)	0.407*** (0.016)	0.183*** (0.010)	0.126*** (0.009)	0.098*** (0.008)
[20, 24]	121.417*** (4.053)	62.546*** (3.813)	57.860*** (3.888)	53.597*** (3.842)	0.393*** (0.009)	0.180*** (0.009)	0.138*** (0.008)	0.115*** (0.007)
[25, 29]	76.244*** (5.756)	51.540*** (5.604)	52.622*** (6.026)	45.020*** (6.042)	0.252*** (0.009)	0.131*** (0.009)	0.101*** (0.009)	0.095*** (0.009)

Panel F: Hiring 18 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	160.696*** (9.962)	47.001*** (4.714)	58.395*** (4.818)	36.848*** (4.020)	0.571*** (0.036)	0.165*** (0.014)	0.204*** (0.014)	0.105*** (0.011)
[20, 24]	94.854*** (6.604)	81.974*** (5.292)	48.089*** (4.817)	45.423*** (4.758)	0.292*** (0.016)	0.229*** (0.014)	0.131*** (0.012)	0.116*** (0.011)
[25, 29]	79.199*** (7.176)	52.809*** (6.520)	40.720*** (8.246)	32.523*** (7.540)	0.272*** (0.014)	0.156*** (0.013)	0.109*** (0.012)	0.083*** (0.012)

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Age Class:								
[15, 19]	133.320*** (3.928)	-10.940*** (3.269)	56.886*** (1.985)	49.552*** (1.911)	0.448*** (0.015)	-0.054*** (0.011)	0.169*** (0.006)	0.128*** (0.005)
[20, 24]	175.458*** (4.363)	23.914*** (3.716)	108.468*** (2.906)	116.703*** (2.975)	0.474*** (0.008)	0.049*** (0.008)	0.241*** (0.005)	0.217*** (0.004)
[25, 29]	102.019*** (4.097)	-30.022*** (5.230)	96.129*** (4.553)	120.414*** (5.061)	0.343*** (0.008)	-0.062*** (0.011)	0.220*** (0.007)	0.216*** (0.007)

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 12: Heterogeneity by Educational Attainment -- Wages and Log Wages

Panel A: Internship 6 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	-20.813** (9.123)	25.921*** (8.494)	5.450 (7.089)	21.306*** (6.558)	0.006 (0.034)	0.054* (0.030)	-0.004 (0.022)	0.047*** (0.017)
Secondary	102.611*** (5.798)	90.914*** (4.781)	103.335*** (4.451)	125.895*** (4.623)	0.303*** (0.018)	0.176*** (0.012)	0.147*** (0.010)	0.182*** (0.008)
Higher	89.571*** (9.076)	155.863*** (8.842)	218.065*** (7.600)	211.385*** (7.775)	0.310*** (0.018)	0.243*** (0.013)	0.288*** (0.011)	0.221*** (0.010)

Panel B: Internship 12 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	62.798*** (3.876)	-78.669*** (4.692)	33.779*** (3.727)	47.671*** (3.493)	0.306*** (0.021)	-0.294*** (0.018)	0.081*** (0.010)	0.113*** (0.009)
Secondary	146.194*** (1.994)	-21.955*** (2.110)	94.612*** (1.734)	94.438*** (1.735)	0.477*** (0.005)	-0.149*** (0.007)	0.174*** (0.004)	0.157*** (0.003)
Higher	145.974*** (2.451)	-21.650*** (3.005)	152.193*** (2.531)	155.166*** (2.599)	0.432*** (0.005)	-0.077*** (0.007)	0.246*** (0.004)	0.213*** (0.004)

Panel C: Internship 18 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	30.454* (18.264)	-31.555** (12.376)	16.724 (10.165)	11.921 (9.024)	0.196*** (0.071)	-0.024 (0.041)	0.045 (0.029)	0.031 (0.021)
Secondary	152.580*** (10.308)	82.340*** (6.297)	120.077*** (6.776)	120.761*** (6.516)	0.430*** (0.023)	0.211*** (0.017)	0.245*** (0.015)	0.199*** (0.014)
Higher	147.504*** (10.726)	47.454*** (7.938)	172.421*** (8.793)	175.449*** (8.922)	0.417*** (0.020)	0.186*** (0.014)	0.261*** (0.014)	0.224*** (0.013)

Panel D: Hiring 6 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	46.870*** (4.366)	22.155*** (4.349)	23.484*** (4.016)	27.101*** (3.601)	0.222*** (0.013)	0.080*** (0.012)	0.098*** (0.011)	0.099*** (0.009)
Secondary	76.019*** (4.565)	37.341*** (3.513)	27.447*** (3.431)	37.801*** (2.984)	0.286*** (0.012)	0.115*** (0.009)	0.087*** (0.008)	0.089*** (0.006)
Higher	94.344*** (14.742)	65.464*** (14.156)	120.366*** (13.108)	110.628*** (13.805)	0.288*** (0.026)	0.176*** (0.025)	0.219*** (0.020)	0.166*** (0.020)

Panel E: Hiring 12 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	84.134*** (4.242)	55.402*** (3.931)	42.432*** (3.675)	27.899*** (3.404)	0.308*** (0.010)	0.158*** (0.010)	0.098*** (0.009)	0.057*** (0.008)
Secondary	103.500*** (3.581)	57.850*** (3.202)	40.451*** (3.246)	45.011*** (3.208)	0.341*** (0.007)	0.172*** (0.007)	0.107*** (0.006)	0.108*** (0.005)
Higher	123.559*** (11.407)	76.095*** (9.731)	123.212*** (9.787)	107.371*** (9.808)	0.401*** (0.020)	0.178*** (0.015)	0.233*** (0.015)	0.197*** (0.014)

Panel F: Hiring 18 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(4) 36 Months	(5) 1 Month	(6) 12 Months	(7) 24 Months	(8) 36 Months
Education:								
Less than secondary	62.169*** (5.221)	43.176*** (4.589)	28.638*** (4.480)	21.543*** (4.290)	0.237*** (0.015)	0.143*** (0.013)	0.098*** (0.013)	0.075*** (0.012)
Secondary	108.691*** (5.363)	67.674*** (4.211)	59.680*** (5.124)	43.996*** (3.948)	0.352*** (0.013)	0.197*** (0.011)	0.166*** (0.009)	0.104*** (0.008)
Higher	123.369*** (21.439)	89.738*** (18.502)	50.960*** (17.390)	76.519*** (17.979)	0.362*** (0.036)	0.266*** (0.030)	0.104*** (0.030)	0.179*** (0.027)

Panel G: Internship 12 months + Hiring 12 months								
Dep. Variable:	Wages				Log Wages			
	(1) 1 Month	(2) 12 Months	(3) 24 Months	(5) 36 Months	(6) 1 Month	(7) 12 Months	(8) 24 Months	(8) 36 Months
Education:								
Less than secondary	35.956*** (4.700)	-44.477*** (5.530)	62.622*** (3.667)	48.453*** (3.746)	0.183*** (0.014)	-0.113*** (0.021)	0.209*** (0.011)	0.153*** (0.010)
Secondary	140.753*** (2.625)	6.053** (2.600)	77.222*** (1.881)	82.461*** (1.963)	0.456*** (0.007)	-0.005 (0.008)	0.200*** (0.004)	0.178*** (0.004)
Higher	164.239*** (4.480)	6.872 (4.534)	123.339*** (3.531)	142.987*** (3.658)	0.440*** (0.008)	0.024*** (0.009)	0.254*** (0.005)	0.241*** (0.005)

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

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