
Why do youth job-training programmes participants drop out? The case of Projoven-Peru

This version 09/04/2009

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(April, 2009) – Draft Version (Comments are welcome)

Abstract

Although high drop out rates are common in youth job-training programmes (YJTP), little attention has been devoted to understand this phenomenon. This paper explains why trainees do not complete YJTps. Particularly, we analyze the case of Projoven-Peru. We estimate individuals' drop out likelihood using a probit model with sample selection as the withdrawal decision is only observed for those trainees who are placed in internships. We find that experiencing training courses prior to Projoven, having a formal contract during the internship and the effectiveness of the training, measured as the share of trainees working six months after training per training provider, decrease the likelihood to drop out of Projoven internship. We distinguish two exit routes: withdrawal from training to a job and withdrawal from training to unemployment-inactivity. We find evidence that being a male and increments in the household family income augment the likelihood to drop out of training to a job; whereas high unemployment rate reduces the chance to drop out of training to unemployment-inactivity.

Keywords: youth job training programme, Projoven, dropout, probit models, sample selection.

JEL classification: C24, J24, J48, M53.

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We are grateful to XX, XX and XX for valuable comments. The usual disclaimer applies.

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1. Introduction

There is a growing consensus about the need for public policies to promote decent work for economically disadvantaged youths. By the provision of occupational skills, publicly funded youth job-training programmes (YJTPs) are expected to produce an accumulation of competencies which brings returns in the form of better earnings and employment perspectives for young people. Nevertheless, empirical findings have shown little or no effects of YJTPs on trainees' earnings in the U.S. and Europe (Heckman et al., 1999), but positive, and statistically significant, returns in the Latin American case (Betcherman et al., 2004). With respect to employment, no significant effects have been found in the U.S.; however, in Europe and Latin America small positive returns have been reported, particularly for women (Betcherman et al., 2004, and Irribarán and Rosas, 2008).

Despite the large body of research devoted to estimate the YJTPs impact on employment and earnings, limited effort has been devoted to analyze drop out rates in YJTPs, its consequences and its nature.¹ While much of the literature in impact evaluation ignores the drop out phenomenon by treating training as an investment which, when undertaken, will definitely be completed; other approaches consider withdrawals as a random event which implies no selection. Nevertheless, low completion rates are common among YJTPs in the US, Europe and Latin America. In most of the cases the completion rates are below 77%.

Low completion rates in YJTPs may imply losses for both, policy planners and trainees. Economic resources are wasted if individuals who do not need to complete the training enrol instead of individuals who would benefit from completing the programme. In addition, individuals' losses may occur as drop out decisions are made under uncertainty. As individuals based their decision on information they are not certain about, such as training outcomes, these decisions may imply losses in terms of less earnings perceived or less chances to be

¹ Papers like Waller (2008), Mealli et al. (1996), Kluge et al. (2007) and Flores-Lagunes et al. (2007) constitute an exception. Nevertheless, the last three papers are focused on the effects of training length on trainees' labour outcomes. Additionally, Heckman et al. (1998) develops a theoretical framework for the analysis of training effects under the presence of dropouts with partial treatment.

employed in the long run. Individuals' decisions to drop out of, to continue or to complete training follow a utility maximization process where opportunity costs are observed, but the training benefits are uncertain. The introduction of uncertainty in the training length choice implies that trainees revise their decisions as long as they acquire new information about what they can expect of undertaking training and this is only plausible after enrolment.

Dropping out could also be seen as a problem of targeting, programme timing or programme content. First, some individuals' characteristics enhance training returns. Consequently, not all the individuals will make the necessary effort to complete the programme as their expected benefits are not high enough to compensate their opportunity costs of undertaking training. Second, the time when the programme is conducted, e.g. during recession or economic growth, may lead trainees to drop out or to pursue training. The economic environment modifies trainees' expectations, opportunity costs and the discounting rate to estimate the present value of future earnings. Finally, the programme content and quality of the training centres, unknown for the trainees before the programme starts, modify individuals' expectations about the returns of the training during the programme.

In this paper, we study the drop out behaviour of the Peruvian YJTP Projoven which is run by the Peruvian Ministry of Labour. The official goal of the programme is to facilitate the initiation of economically disadvantaged youngsters (16-24 years old) into the formal labour market. Projoven provides funding for basic training in low-skilled occupations. Projoven finances training institutions (ECAPs) to train the programmes' participants and to place them in on-the-job training internships. Projoven's training courses are based on a two-step sequence design. First, the trainees spend 200-300 hours on formal classes at the training centre location. Afterwards, the trainees are placed in firms for a three-month on-the-job training experience. During the internship the trainees are paid the minimum wage by the employer. The targeted population are youths in poverty status with low educational attainment.

We evaluate the determinants of the drop out decision in Projoven by using a probit model with sample selection. This model takes into account that the withdrawal decision is only observed for those trainees who are placed in internships. Almost all the trainees, around 96% on average per public call, complete the first stage of the training: the classroom training. However, around 20% on average are not placed in internships by the ECAPs (involuntary drop out). Only the trainees who are placed in internships have the option to drop out and for them the withdrawal decision is observed.

Our findings suggest that experiencing training courses prior to Projoven, having a formal contract during the internship and the effectiveness of the training, measured as share of trainees working six months after training per ECAP, decrease the likelihood to drop out of a Projoven internship. Quality related indicators such as students per courses, cost per student per hour and type of ECAP are used as exclusion restriction in the selection model of being placed in internship. Trainees in ECAPs with more high quality indicators are more likely to be placed in on-the-job training internships. We also distinguish two exit routes: withdrawal from training to a job and withdrawal from training to unemployment-inactivity. In addition to the variables explaining drop out decision, we find evidence that being a male and increments in the household family income augment the likelihood to drop out of training to a job; whereas a high unemployment rate reduces the chance to drop out of training to unemployment-inactivity.

Our empirical results provide evidence that YJTPs function as a job search mechanism. As youths prefer employment to unemployment, trainees stay in YJTP as long as the expectations of getting a job are positive. This is reflected in the negative correlation of the unemployment rate and training centres effectiveness on the likelihood to drop out. Additionally, statistics show that the share of dropouts increases as the training termination approaches. The short-run setting of the internship contracts put pressure on the trainees to intensify the search for jobs as the contract is about to finish.

This article is composed as follows. Section 2 presents a theoretical discussion and a literature review of dropping out behaviour in YJTPs. Section 3 displays the empirical framework to evaluate drop out determinants of Projoven. Section 4 describes Projoven's dataset. Section 5 shows the results of our estimations. Finally, section 6 concludes.

2. Dropping out behaviour in YJTP

Low completion rates (or high drop out rates) indicate whether the programme is producing targeting errors, the programme is not conducted in the most appropriate environment or the content of the training is not relevant. Additionally, drop out affects the evaluation of programme outcomes as neglecting low completion rates biases the results of the impact assessment (Heckman et al., 2000). To understand the nature of the high drop out rates phenomenon it is necessary to assess its extension, to comprehend how the drop out decision is made (under uncertainty) and to find out the determinants of this decision. In this section we discuss in details each of these items.

Drop out evidence

Low completion rates are common among YJTPs. In table 1, we observe, indeed, that with the exception of the Argentinean Proyecto Joven, which presents a completion rate of 90%, most of the YJTPs experience completion rates below 77%. In the U.S. the issue is presented in a different version. Heckman et al. (2000) show that in the framework of the National Job Training Partnership Act less than 60% of the individuals who enrolled in the programme showed up to participate in the training. Therefore, completion rates presented as in the U.S. case may be understood as take up rate.

Table 1.
Youth job-training programmes and completion rates

Programme	Country	Year	Completion rate	Source
Projoven ¹	Peru	1996-2005	60%	de Crombrugghe et al. (2008)
Projoven ²	Uruguay	2004-2005	51%	Projoven Survey (2006)
ChileJoven ³	Chile	1996-1999	74%	Santiago Consultores Asociados (1999)
Proyecto Joven	Argentina	1996-1997	90%	Aedo and Nuñez (2004)
Procajoven	Panama	2005	77%	Ibarrarán and Rosas (2007)
Juventud y Empleo	Dominican Republic	2004	60%	Card et al. (2007)
Training programmes ⁴	Germany	2000-2002	69%	Kluve et al. (2007)
National Job Training Partnership Act (JTPA) ⁵	USA	1987-1989	58%	Heckman et al. (2000)

Notes:

¹ The figure corresponds to the average completion rate of the first 13 public calls.

² Only 10th public call.

³ Phase 2. The figures belong to the "training and job experience" component (CEL).

⁴ Only men sample. Includes "occupation specific training programmes" and "general training programmes".

⁵ Only classroom training. In this case dropouts are individuals who enrolled in the programme but did not show up.

All these YJTPs, except in the case of Germany, share the two-step sequence design of classroom instruction and on-the-job training experience. In most of the cases, the Latin American ones particularly, the policy planner finances job-training centres to provide the training and to ensure that a quota of trainees are placed in firms for on-the-job training experience. Most of the YJTPs in table 1 present completion rates higher than 90% for the first phase of the training. The reasons associated with this phenomenon may be found at the institutional arrangements of the programmes and in the returns associated with every training phase.

First, regarding institutional arrangements, job-training centres are bound by contract to ensure that a certain share of trainees participates in internships after the classroom training phase. In Latin American countries, this percentage is around 70%. Additionally, in the election of training centres, preferences are given to those institutions which ensure higher rates of trainees' placements in firms.² However, in cases like the Uruguayan one, training centres must only comply with a 45% quota of on-the-job training placements. This also could explain why Projovent-Uruguay has the lowest completion rate among the examples compiled.

Another reason to drop out of YJTPs associated with institutional aspects is the time gap between the classroom training and the on-the-job training. Santiago Consultores Asociados (1999) points out that the transition from the classroom training to the internship is not immediate. In many cases there exists some weeks delay which discourage trainees to show up as they lose interest during long gaps.

Second, regarding the returns of the two training phases, if higher returns are achieved with the first one (classroom training), it may not be worthwhile to complete the second phase (on-the-job training). On one hand, Flores-Lagunes et al. (2007) for the case of the training programme Job Corps in the US, and Chong and Galdo (2006) found that the returns of the classroom phase on trainees' earnings are higher than the returns of the on-the-job training internship. On the other hand, Chong and Galdo (2006) argue that the overall effect of completing the training, classroom training plus internship, is the highest in the case of Projovent-Peru. In the case of returns on employment, Kluve et al. (2007) show that the first three months of German training programmes are the most effective period to improve employment likelihood of participants with respect to non-participants. Conversely, Mealli et al. (1996) found that completing YJTP is associated with significantly higher employment probability in the case of the Youth Training Scheme in the U.K.³

Drop out decision under uncertainty

Human capital theory (Becker, 1964) suggests that investments in education pay off when they yield an accumulation of competencies which, by increasing individual's productivity, are reflected in the form of higher remunerations. This implies that the mechanisms of market competition give an incentive to individuals to choose the length of education on which the market sets a premium. Furthermore, human capital theory predicts that educational choices

² Interview with Projovent Peru director Victor Shiguiyama (Lima, April 2007).

³ The Youth Training Scheme only included the on-the-job training not the classroom phase.

are socially efficient if the labour market is perfectly competitive. However, labour markets are far from being in perfect competition. In the case of training for economically disadvantaged youngsters, individuals face labour market failures in the form of uncertainty about the returns of the training.

As enrolling in and dropping out of YJTPs is voluntary, individuals assess the costs and benefits of that decision. The individual's cost of training comprehends the individual's opportunity costs and the effort attached to complete the training. Most skilled individuals face higher opportunity costs; however, their effort needed to complete the programme is smaller. Moreover, we must recall that the returns of the training are uncertain for the trainees as well as the content and the quality of the training.⁴ Consequently, individuals do not know beforehand whether they will complete the training as they ignore whether they are capable to or if it is worthwhile to do so.

Enrolment in a YJTP may be seen as a decision to start an experiment.⁵ First of all, individuals decide to enrol in a YJTP if the expected outcome of the decision is greater than the outcome of their alternative activity, although the expected outcome of the training is uncertain. In publicly funded YJTPs for economically disadvantaged individuals all trainees are assumed to be able to graduate. In Projoven, for instance, training completion is not conditioned on further tests or examinations. Trainees obtain a certificate of participation if they attend the courses, workshops of the classroom training and if they complete the on-the-job training internship when they are successfully placed in a training firm by the ECAPs.

We define C_i as the opportunity costs of staying in the YJTP for the individual i . Opportunity costs vary by individuals: the most skilled individuals face higher opportunity costs. Benefits of training are represented by B_i , which also vary across individuals as the YJTP impact on trainees might be heterogeneous. We also define P_i as the probability to complete the training. Thus, individuals enrol in YJTPs if:

$$[\text{Eq. 1}] \quad P_i B_i - C_i \geq 0$$

Manski (1989) idea of enrolment as experiment implies that if the individual is indifferent she will enrol in the YJTP. The threshold which determines the probability to complete the training is given by:

⁴ In the case of Projoven-Peru Chacaltana et al. (2003) and Chong and Galdo (2006) suggest that the quality of the training centres (ECA is not uniform.

⁵ Manski (1989) uses this analogy to explain drop out behaviour of post-secondary education.

$$[\text{Eq. 2}] \quad \psi_i \equiv \frac{C_i}{B_i}$$

In this fashion, the likelihood to complete the training depends on the opportunity costs of taking training, C_i , and the expected outcomes of the training, B_i . Factors such as experiencing an unemployment spell, having a precarious job, or labour market conditions (e.g. high unemployment rate) reduce the opportunity costs of taking training (makes ψ_i smaller) enhancing the selection into training (Heckman and Smith, 1999).

As training outcomes (B_i) are unknown, individuals with low opportunity cost at enrolment period just enrol in without knowing if they will complete the training or not (they start an experiment). Afterwards, attending workshops and classes at the training centre gives trainees a clearer image about which returns could be the expected from the training. Particularly, indicators of training quality such as students per course, cost of training per student, course workload, instructors' experience, training effectiveness (share of trainees working after six months of training) per training centre and having a formal contract during the internship signal positively the outcomes of the programme. By reducing the threshold ψ_i they increase the likelihood to complete the training.

Based on the uncertainties in which the enrolment decision is made, once the individual enrolls in the YJTP, new information is revealed regarding training content, expected returns and possible job offers. Trainees are able to assess what to expect from the training by observing the teachers expertise, the type of internships and the outcomes of former graduates. Hence, in case of having a job offer they know with more certainty which activity attaches the higher expected utility. As individuals gather more information, they revise their beliefs and expectations and decide if they continue or if they drop out.

Authors such as Schochet (1998) and Heckman and Smith (1999) suggest that YJTP often function as a form of job-search or are seen as a mean to find employment as most of the trainees have never held a full time job. This is not surprising as one of the services YJTPs provide is on-the-job-training at private firms which is designed to lead to immediate employment. If this were the case, Mealli et al. (1996) argue that trainees have an increased incentive to search for work as the termination date of training approaches.

The idea of YJTP as a form of job-search mechanism is also compatible with the screening or signalling theory (Spence, 1973; Stiglitz, 1975). In this case training may serve as a screening device to identify the productivity of unskilled youngsters. In the labour market for unskilled individuals the quality which is

screened would be experience. YJTPs provide trainees with some competences and on-the-job training experiences which are crucial as long as most of the trainees have never had a formal work experience. Hence, when an internship is done under precarious conditions (e.g. without a formal contract) trainees are motivated to quit as they are not acquiring the quality that could identify them as productive in the eyes of future employers.

In sum, as the decision to enrol in a YJTP is made under uncertainty, trainees must revise their preferences. New revealed information about expected training returns, and the effort needed to complete the training is gathered during the training. Additionally, the appearance of job offers or individual shocks modify the cost-benefit assessment and may lead into a drop out decision as termination of the training approaches as training is seen as a form of job search.

Reasons to drop out

Only few studies have surveyed dropouts about their reasons to quit. Santiago Consultores Asociados (1999) for the Chilean case, Aedo and Nuñez (2004) for the Argentinean case and Waller (2008) for the German case found that getting a job is the most common reason to drop out of the training. This would confirm the discussion in the previous section of YJTPs as a job search mechanism. Another important reason is related to the problems trainees may face with their direct bosses in the internships. Most of the dropouts argue that they work under precarious conditions and in some cases the internship's content is not related to the classroom training. In addition, a high proportion of dropouts argue "other reasons" such as diseases or having a child or parent's death to withdraw from the training.

Empirical evidence, regarding dropping out of post-secondary education, suggests that there are many reasons to explain the drop out phenomenon. The literature reports three categories: labour market conditions, demographic characteristics of the individuals and features of the programme. First, regarding labour market conditions, Pietro (2004) and Peraita and Pastor (2000) argue that the unemployment rate of the region of residence influences drop out decisions. In the case of school and high school, low unemployment rates encourage individuals to drop out as the context offers employment opportunities.

Second, demographic characteristics, family background factors and socioeconomic status have an impact on the drop out decision. Pietro (2004) and Peraita and Pastor (2000) point out that parents' education and wealth levels are important factors which encourage completion of post-secondary education. Parents may provide additional information on the pay-off of completing educational programmes. With respect to socioeconomic status, it is also argued

that poor individuals have a higher discount rate, and because of that they are short run focus in their decision-making. Based on the poverty status of the trainees, it may be the case that a high opportunity cost and the need to cover basic needs in an urgent basis are pushing the trainees to leave the programme. Additionally, as the trainee must also be able to complete the programme, individuals' abilities also play a role (Montmarquette et al., 1996). Other individuals' characteristics, such as having a child, previous experience in job-training programmes and unemployment spells before the training influence drop out decisions by increasing the likelihood of leaving the programme (Waller, 2008).

YJTPs' impact is heterogeneous. The impact evaluation literature offers plenty of examples that some individuals' characteristics enhance training returns. These characteristics could make it for some trainees worthwhile to complete the training and not for others. Moreover, it could be the case that once the trainees acquire the skills which increase their productivity, there is no need to continue in training.

Finally, characteristics of the programme content, mainly the courses' quality, also affect drop out decisions. Training quality modifies trainees' expectations about the training outcomes. Training quality affects positively the likelihood of completing the training because it signals competent trainees in the eyes of employers. Additionally, high-quality ECAPs are more likely to place trainees in firms. Waller (2008) presents evidence that trainees enrolled in high-quality courses are less likely to drop out. The training-quality information is gathered by the trainee only once she enrolls in. Oosterbeek (1992) shows that better informed students, at the commencement of the course, are less likely to drop out.⁶

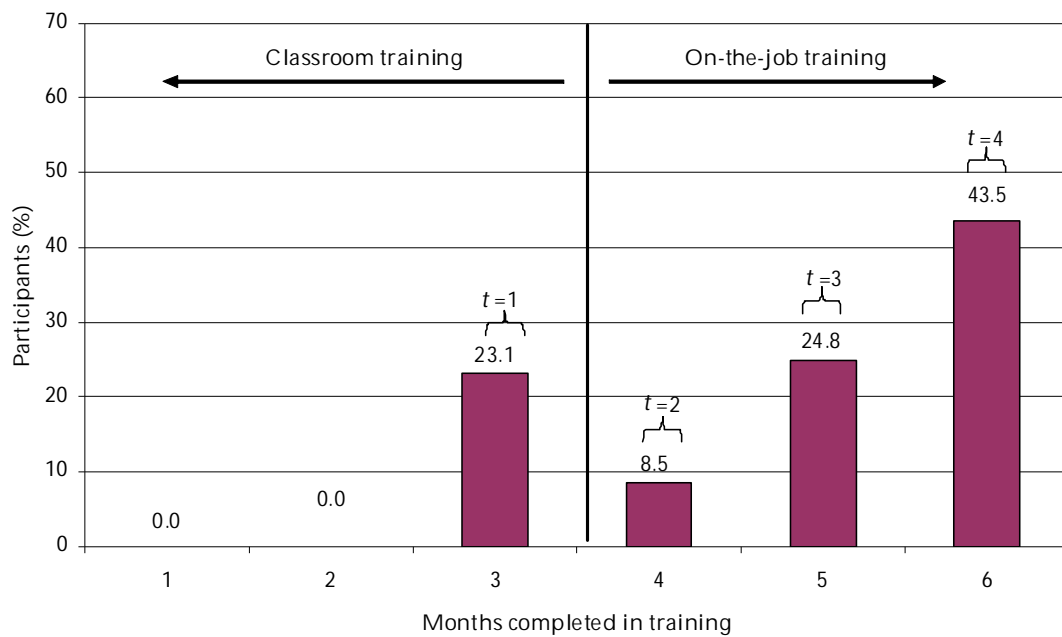
3. Empirical framework

In this section we present a model to estimate the likelihood to drop out of a YJTP. We use the Peruvian programme Projoven 6th public call dataset for this purpose. Projoven encompasses two phases, classroom phase and on-the-job training internship, which last 3 months each. All the trainees in the sample complete the first phase and around 23% of participants involuntarily drop out before starting the internship. These cases correspond of those individuals whose ECAPs did not place them in firms for internships. Additionally, 33.3% of the

⁶ Oosterbeek (1992) provides an appealing example. This author surveys a representative sample of first year economics students at Amsterdam University. These students are asked about their subjective probability to graduate. Oosterbeek (1992) found that only 8% of the individuals gave a certain answer (0% or 100%).

trainees drop out of the training during first two months of the internship and 43.5% completes the programme (See figure 1). We only include in our sample individuals from Lima and Chiclayo⁷.

Figure 1.
Distribution of trainees by participation level. Projooven 6th public call (Lima and Chiclayo).

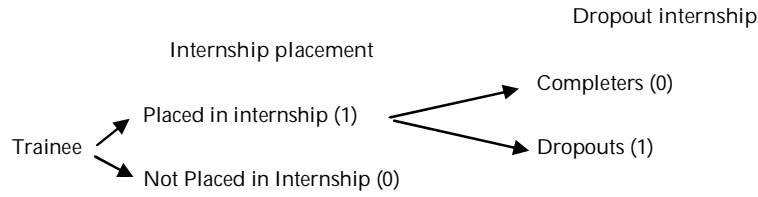


Source: Projooven. Own elaboration.

As all the trainees complete the classroom phase and 23% of the trainees are not placed in internships, we only observed the decision of dropping out of a Projooven internship for those trainees placed in internships. Training centres may fail to place trainees in internships. Therefore, dropping out may not be, in some cases, the result of an individual cost-benefit assessment. This could represent a problem if selection into internship is not a random process. To account for selection into internships we propose a maximum-likelihood probit model with sample selection to investigate the likelihood to drop out of Projooven internships, following a process like in figure 2.

Figure 2.
Dropping out process in Projooven

⁷ The reason to exclude trainees from Arequipa, Cusco and Trujillo is provided in the next section.



As we have previously discussed most of the dropping out occurs after completing the classroom training. In this study, the empirical strategy assumes that every individual (i) in the sample optimizes her decisions in order to maximize her utility U_i . In this case, the decision is whether to drop out of the on-the-job training D_i . This variable is defined as: $D_i = 1$, when the trainee drop outs and $D_i = 0$ otherwise. Consider now, that each individual face two possible state specific utilities:

[Eq. 3] $U_{i,D=1} = X'_i \beta_1 + u_{i1}$, when the trainee drop outs

[Eq. 4] $U_{i,D=0} = X'_i \beta_0 + u_{i0}$, when the trainee stays in the on-the-job training.

where X_i is a vector of demographic characteristics, unemployment rate, and characteristic of the internship of the trainee i ; while β_1 and β_0 , stand for the coefficients of the respective variables; and u_1 , u_0 represent the disturbance terms. Under this characterization, every individual will drop out if the utility of doing it ($U_{i,D=1}$) is greater than in the alternative case ($U_{i,D=0}$). However, we do not observe expected utility; we rather observe the realization of the decision. Consequently, we model the probability of drop out of the internship like:

$$\begin{aligned}
 D_i &= 1(U_{i,D=1} > U_{i,D=0}) \\
 \text{[Eq. 5]} \quad &= 1(X'_i \beta_1 + u_{i1} > X'_i \beta_0 + u_{i0}) \\
 &= 1[X'_i (\beta_1 - \beta_0) + (u_{i1} - u_{i0})] \geq 0
 \end{aligned}$$

Because it is not feasible to identify both parameters (β_1, β_0), we always can identify the differences of them and make an implicit transformation:

[Eq. 6] $D_i = 1(U_i^* > 0)$

where, $U_i^* = X'_i (\beta_1 - \beta_0) + (u_{i1} - u_{i0}) = X'_i \beta + u_i$; and u represents an unobservable stochastic component distributed standard normally (Probit). The rationale is to derive the drop out behaviour by using the latent variable approach as we do not observe the individuals utility. Thus, we model drop out decision as:

$$[\text{Eq. 7}] \quad D_i = 1(U_i^* > 0) = E(D_i | X_i) = \Pr(D_i = 1 | X_i) = \Pr(X_i' \beta + u_i \geq 0 | X) = \Phi(X_i' \beta)$$

$\Phi(\cdot)$ represents the standard normal cumulative distribution function. Nevertheless, the likelihood to drop out of the Projoven internship is only observed for those trainees who were placed in internships by their ECAPs.

$$[\text{Eq. 8}] \quad D_i = \begin{cases} D_i & \text{if } H_i = 1 \\ \text{missing} & \text{if } H_i = 0 \end{cases}$$

we define H_i as the dependent variable of the selection into internships. Selection may be present if, for instance, high quality ECAPs are more likely to place trainees in internships. The decision of dropping out of the internship is observed when the trainee has been placed in a training firm by the ECAP, $H_i = 1$. We estimate H_i as:

$$[\text{Eq. 9}] \quad H_i = \delta Z_i + v_i \\ H_i = E(H_i | Z_i) = \Pr(H_i = 1 | Z_i) = \Phi(Z_i' \delta)$$

$\Phi(\cdot)$ stands for the probit function, Z_i is a vector containing X_i and ECAPs' characteristics such as: students per course, course workload, share of teachers with more than five years of experience per ECAP, whether the trainee followed a production oriented course and dummy variables about the type of ECAP.

To estimate the likelihood to drop out of Projoven internship conditional on being placed in a training firm, we assumed that (u_i, v_i) are distributed bivariate normal for all i . Consequently:

$$E(A_i | H_i = 1, X_i, Z_i) = \\ [\text{Eq. 10}] \quad = \Pr(A_i = 1 | H_i = 1, X_i, Z_i) = \\ = \Pr(X_i \beta + u_i > 0 | \delta Z_i + v_i > 0, X_i, Z_i)$$

and:

$$[\text{Eq. 9}] \quad u_i \sim N(0,1)$$

$$[\text{Eq. 10}] \quad v_i \sim N(0,1)$$

$$[\text{Eq. 11}] \quad \text{Cov}(u_i, v_i) = \rho; \text{ and } \rho \neq 0$$

This is the representation of a maximum likelihood probit model with sample selection. Eventually, the usual tests for independence of the structural equations will be performed in order to assure the robustness of the estimations. Nevertheless, this model does not distinguish between various alternative reasons for withdrawal. According to Mealli et al. (1996) and Waller (2008) there may be an important distinction between individuals who leave a YJTP to a job or to inactivity. Consequently, to test whether this is the case in Projoven, we consider the cases of individuals dropping out of training because of a job offer or because of unemployment/inactivity. This specification assumes that correlations between unobservable factors affecting each destination-specific hazard are assumed away as the options of withdrawal from Projoven are independent.

4. Data

The Projoven's 6th Public Call dataset consists of a base line survey, conducted in November 1999 (2-3 months before the programme) and three *follow-up* comparison surveys: 6 months after the programme (May 2001), 12 months after the programme (November 2001), and 18 months after the programme (May 2002). In this research we only use the baseline survey as sort of information about the demographic characteristics of the trainees. Additionally, we use administrative records from Projoven in order to add as explanatory variables ECAPs' characteristics.

The non-experimental dataset of Projoven 6th public call consists of 1,014 participants and 1,014 control group individuals. Both groups share the same observables characteristics such as: sex, education, age and poverty status. Additionally, control group individuals are eligible to be selected in Projoven. As we focus on the time of completion, we do not include in our analysis the individuals in the control group. We also exclude from the sample estimation the trainees from Arequipa, Cusco and Trujillo. Projoven regional offices from those cities did not collect information about the type of contract the trainees had during their internship or if they dropped out of Projoven because they were not placed in internships by the training centres. As a consequence, our sample comprehends only trainees from Lima and Chiclayo (471 trainees).

As Projoven has a fixed length of participation we distinguish two types of individuals: those who complete the training and those who do not. Among those who do not complete the training we identify three categories: involuntary ending (not placed in on-the-job training internships), drop out of on-the-job training to a job and drop out of on-the-job training to unemployment-inactivity;

these categories represent 41%, 38% and 21% of the dropouts respectively. (See table 2)

Table 2.
Trainees' characteristics. Projoven 6th Public call (Lima and Chiclayo).

	Overall sample	Dropouts			Completers
		Involuntary ending	Training-to-job	Training-to-unemployment or inactivity	
Total	471	109	102	55	205
Av. age	19.4	19.2	19.3	19.6	19.5
Av. household size	6.1	6.4	6.4	6.1	5.7
Female (%)	57.7	50.5	46.1	63.6	65.9
Married (%)	10.2	10.1	7.8	7.3	12.2
Having a child (%)	15.5	11.9	14.7	14.5	18
Ln family income pc	4.7	4.6	4.8	4.6	4.7
Av. years schooling	10.5	10.6	10.5	10.5	10.5
Father tertiary education (%)	10.0	11.0	9.8	10.9	9.3
Mother tertiary education (%)	5.7	3.7	4.9	9.1	6.3
Additional training course (%) –different than Projoven	24.4	18.3	23.5	21.8	28.8
No working experience prior to the training (%)	45	52.3	40.2	60.0	39.5
City					
Chiclayo	23.4	41.3	20.6	34.6	12.2
Lima	76.7	58.7	79.4	65.5	87.8
Av. Unemployment share (%)	45.5	47.1	45.6	46.8	45.0
ECAPs characteristics					
Students per course	18.7	19.2	18.9	19.0	18.3
Course workload (hours)	264.9	269.3	259.8	256.6	267.2
Cost per student per hour (S/.)	5.6	5.3	6.0	5.7	5.6
Teachers > 5 years experience (%)	71.1	80.0	75.0	66.4	65.8
Type Course					
Production oriented	54.1	36.7	67.7	54.6	56.6
Service oriented	45.9	63.3	32.4	45.5	43.4
Type Ecap (%)					
Centres for vocational training (CEO)	35	11.9	26.5	32.7	52.2
Firms	2.8	0.0	1.0	0.0	5.9
Institutes for tertiary technical education (IST)	2.3	1.8	1.0	1.8	3.4
NGO	21.4	27.5	20.6	27.3	17.1
Vocational training centres sponsored by economic sector guilds	31.9	48.6	46.1	30.9	16.1
University	1.9	2.8	4.9	1.8	0.0

Others	4.7	7.3	0.0	5.5	5.4
Effectiveness	60	57.6	60.9	57.9	61.3
On-the-job training with formal contract	55	0.0	40.2	41.8	95.1

Source: Projoven dataset and national Institute of statistics and Informatics of Peru.

¹ It refers to the share of trainees working 6 months after the programme.

Table 2 also displays a set of individuals' characteristics that we use in our regression analysis by completers and dropouts categories. We observe that trainees, completers and dropouts are similar in variables which define entitlement in the programme, such as: age, family income per capital and years of schooling and household size. Basically, all the trainees are poor and have low educational attainment. Table 2 also shows that the share of females, married individuals, trainees with kids, and trainees with another training course among completers are slightly higher than dropouts. In addition, a higher share of individuals without working experience is observed among the dropouts in comparison with the completers.

Regarding the city of residence, table 2 displays that the proportion of dropouts with respect to completers is higher in Lima than in Trujillo; however, we must note that Lima has the higher share of trainees. The variable unemployment share was built at city level. It comprehends the share of individuals in the control group who are experiencing unemployment status at the month of reference. It represents, genuinely, the performance of the labour market for individuals with the trainees' background. We observe that in general there is no difference in this respect between completers and dropouts.

With respect to the ECAPs characteristics, we do not observe important differences in table 2 regarding students per course, course workload and cost per student per hour. In general these figures complement the argument of Chong and Galdo (2006) who state that individuals in high and low-quality courses have equivalent spells of training duration. They point out that selection of trainees into ECAPs is random. Nonetheless, the share of teachers with more than 5 years experience is higher in dropouts' ECAPs. Additionally, completers present a higher share than dropouts in alternative indicators of training quality such as effectiveness, measured as the proportion of trainees with a job per training centre after 6 months, and in the share of trainees with a formal contract in the internship. This indicator also serves as evidence of the low enforcement power of the programme operator. Firms must hire the trainees under training contracts and pay them the minimum wage. Nevertheless, reality shows that this is not the case and 45% of the trainees are in the so called black payroll.

With respect to the type of courses, we observe that dropouts have a higher share in production oriented courses, whereas completers have a higher share in

service oriented courses. Regarding the type of training centres, table 2 shows that completers have a higher share than dropouts in centres for vocational training (CEO), firms and NGOs; whereas dropouts have a greater presence in institutes for tertiary technical education (IST), universities, vocational training centres sponsored by economic sector guilds and others.

From the distribution of completers and dropouts along the type of training centres conclusions are not clear whether it is related to the expected outcomes. At national level, Saavedra and Chacaltana (2001) present evidence that all the institutions returns on the labour market are heterogeneous. Not only between them, but also within. All the institutions exhibit differences regarding infrastructure, teachers' quality, curricula, and links with productive sector, all of them, variables which affect the outcome of the training. Unfortunately, most of the institutions in the market for vocational training are low-quality ones (Chacaltana and Sulmont, 2004). Chacaltana et al. (2003) present evidence that the heterogeneity of job-training market provision has been repeated in Projoven training centres.

5. Results

Table 3 displays the estimations of the maximum-likelihood probit model with sample selection. We estimate three models. Model (A) considers no distinction regarding reason to drop out, model (B) estimates the probability to drop out of the internship to a job, and model (C) estimates the likelihood to drop out of the internship to unemployment-inactivity. We observe that in models (A) and (C) demographic variables do not play an important role at determining the exit decision from the programme as they are not statistically significant. Nevertheless, in model (B) drop out to a job, while being female reduces the likelihood of withdrawal, increments in household income per capita increases the chances to quit the programme. As previously discussed, empirical evidence shows that YJTPs effects are boosted by certain individual characteristics such as being female or being among the most economically disadvantaged trainees. Therefore, trainees lacking these characteristics are more likely to drop out if a job offer is present. Additionally, students with experience in training courses are less likely to drop out as they may know the benefits of completing training programmes (or eventual costs of not completing).

Regarding the timing of the programme implementation, although it is statistically significant only in the model (C), we confirm that high unemployment rate diminishes the probability to drop out of Projoven by reducing trainees' opportunity costs of continuing training. Nevertheless, the marginal effects look relatively large due to the scale of the variable. Another

crucial variable affecting the likelihood to drop out is the presence of a contract in the internship. Given all three models, trainees with formal contracts are less likely to drop out than those working without contracts. As it is possible that firms hire trainees after the three-month internship, the presence of a contract may encourage trainees to stay and to complete training as it may indicate their eagerness to remain employed. Firms which do not sign contracts for the internship may signal that they are using trainees as cheap labour rather than a real investment. This circumstance, internship without contract, may discourage trainees to remain in training as reduces the expected outcome of the training. Another alternative explanation is related to signalling theory. Doing an internship without a formal contract may imply that trainees are not acquiring the expected quality: formal labour experience, which is the one screened by prospective employers. As a consequence trainees drop out of Projovent as the precarious conditions of the internship do not contribute to signal them as productive workers.

In table 3 we also note that the effectiveness of the training, the share of trainees working after six months per ECAP, reduces the likelihood to drop out in all the models. At every period, trainees gather more precise information about the training centres which allow them to predict the future outcomes of their decisions and the fact that ECAPs are successful, in terms of graduated students working, encourages trainees to continue and complete the training.

The Wald test of independency of the equations in the selection model indicates that if this correction would not have been applied we may have had biased estimators. Only in the model (C) this is not the case. The results of the selection model which are estimated jointly with the drop out model are presented in the table A1 of the appendix. We observe that a higher share of instructors with more than 5 years of experience reduces the likelihood to be placed in an internship. Additionally, it is not possible to draw particular conclusions regarding the type of training centre as they combine high-quality institutions and low-quality ones in the same category (Chacaltana and Sulmont, 2004). Nevertheless, it is interesting that firms are more capable to place trainees. In fact, the firm dummy was excluded as it predicted perfectly the likelihood to be placed in internship. Saavedra and Chacaltana (2001) argue that training provided by firms is by far the one which produces higher returns in the Peruvian labour market.

Table 3
Conditional probability of dropping out of Projovent. Maximum likelihood probit model with sample selection. [Dep. Var: Dropout in internship=1]

	Drop out of training - all exit routes (A)	Drop out of training to a job (B)	Drop out of training to unemployment- inactivity (C)

	Marginal Effects	Std. Err.	Marginal Effects	Std. Err.	Marginal Effects	Std. Err.
Age	0.008	0.009	-0.001	0.011	0.011	0.010
Household size	0.014	0.010	0.018*	0.010	0.009	0.011
Female	-0.066	0.050	-0.101*	0.054	-0.034	0.047
Married	0.007	0.112	0.067	0.087	-0.055	0.083
Child	-0.052	0.083	-0.054	0.057	-0.040	0.087
Ln household income pc (without trainee)	0.049	0.042	0.040**	0.017	0.027	0.041
Years schooling	0.006	0.022	0.020	0.023	-0.003	0.020
Additional training course – different than Projoven	-0.112**	0.045	-0.067	0.047	-0.041	0.047
No working experience prior to the training	0.056	0.049	0.043	0.051	0.050	0.046
On-the-job training with formal contract	-0.587***	0.040	-0.597***	0.045	-0.555***	0.058
Ecap effectiveness ¹	-0.497**	0.195	-0.512**	0.237	-0.364***	0.123
Unemployment rate	-4.844	7.831	-5.248	7.543	-12.138**	5.635
Number of observations	471		416		369	
Censored observations	109		109		109	
Uncensored observations	362		307		260	
Overall Wald test $\chi^2_{(12)}$	4184.16		4617.77		3071.6	
Log pseudolikelihood	-375.6135		-325.72		-269.4321	
Wald test of indep. eqns. $\chi^2_{(1)}$	14.06		14.22		2.00	
p-value	0.0002		0.0002		0.1569	

* Statistically significant at 10%; ** statistically significant at 5%, *** statistically significant at 1%
Marginal effects estimated at the sample median of all the variables.

¹ It refers to the share of trainees working 6 months after the programme.

6. Conclusions

Low completion rates in YJTPs are a widespread phenomenon, disregarding countries of origin. Low completion rates signal whether YJTPs are targeting the right individuals, the programme is conducted in the appropriate time or whether the training content is relevant. Therefore, finding out the determinants of drop out decisions is important so as to allow policy planners to enhance the expected outcomes of the training.

In this paper we analyze the determinants of drop out decisions of the Peruvian YJTP Projoven. We consider that individuals review their cost-benefit assessments of completing the training during the training. In particular as the

drop out decision is only observed for those trainees placed in internships we use a maximum-likelihood probit model with a sample selection.

Our findings suggest that, in general, demographic characteristics do not affect drop out behaviour as trainees are similar in observable variables. Only in the case of dropping out to a job, characteristics which enhance training outcomes, such as being female or being among the poorest trainees decreases the likelihood to drop out. The negative effect of local unemployment on drop out decisions confirms that the effect of high unemployment reduces the opportunity cost of taking training. Measures of training quality such as the share of trainees employed six months after the training affect negatively the likelihood to drop out. In addition, having a formal contract during the on-the-job training internship encourages the trainees to stay in training. It represents the commitment of the firm with the purposes of the training and it may signal a positive likelihood of being hired after the training. The estimations consider possible selection of trainees into internships.

The results of the models confirm the hypothesis that YJTPs function as a job search mechanism. When the individuals decide to enrol in a YJTP, they may be experiencing a particular labour market status which makes the alternative cost of attending the training lower or null. Training is preferred to unemployment as long as it provides chances to get employed in the future and the opportunity costs are low while individuals acquire formal working experience. It would be interesting to know under which circumstances people should be encouraged to continue with training, specifically, those who drop out to a job. If incentives to complete the programme are provided, this may attract individuals who would not have enrolled in training otherwise. Reducing incentives such as stipends and minimum wage policies during the internships will ensure the enrolment only of individuals who are genuinely interested in the training, and therefore, with low probabilities of dropping out. This implies a more rigorous targeting and more widespread communication and information policy about the programme to the targeted population.

In sum, drop out phenomenon affect YJTPs outcomes. Economically disadvantaged youngsters not only need to be provided with training and internships, but with the motivation that the training will pay off. As the programmes, at least in Peru, are small scale, it is difficult for the potential trainees to foresee beforehand the training outcomes. The only way to find out the potential benefits of training is by enrolling in; therefore, a most conscious information session for potential trainees will ensure the enrolment of the most interested ones and those that will make the necessary effort to graduate. Finally, a more rigorous process to select ECAPs will ensure better results in terms of completion rates and training outcomes (earnings and employment) as training

quality and the presence of contract in internships influence the drop out decision.

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8. Appendix

Table A1.

Selection model of Probit model with sample selection. Likelihood to be placed in an internship. [Dep. Var: Being placed in internship=1]

	Coef.	Std. Err.
Age	-0.009	0.026
Household size	-0.031	0.029
Female	0.215	0.143
Married	-0.530	0.406
Child	0.553	0.370
Ln family income pc (without trainee)	0.064	0.127
Years schooling	-0.024	0.056
Additional training course –different than Projoven	0.199	0.179
No working experience prior to the training	-0.021	0.145
Ecap effectiveness ¹	-0.284	0.868
Unemployment rate	-7.982	25.900
Students per course	0.028	0.019
Course workload (hours)	0.003	0.003
Cost per student per hour (S/.)	0.360***	0.108
Teachers > 5 years experience (%)	-1.498***	0.548
Production oriented course ²	0.267	0.213
Centres for vocational training ³ (CEO)	0.643*	0.335
NGO ³	-0.143	0.292
Vocational training centres sponsored by economic sector guilds ³	0.008	0.237

Constant	2.786	13.121
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* Statistically significant at 10%; ** statistically significant at 5%, *** statistically significant at 1%

¹ It refers to the share of trainees working 6 months after the programme.

² Services oriented courses is the base category

³ Others ECAPs is the base category